

# Minnesota Medicine

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# Minnesota Medicine

Journal of the Minnesota State Medical Association

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## ORIGINAL ARTICLES

### GASTRIC CRISES AND RELATED ABDOMINAL PAIN.\*

E. L. TUOHY, B. A., M. D.,  
Duluth, Minn.

At a previous meeting of this society, the writer in collaboration with Dr. N. L. Linne-  
man, presented a report and classification of  
some 280 cases of lues. This report will take  
up a more limited group (45 in all). Some  
cases presented in the original report are here  
included. All of these cases have been encoun-  
tered in the course of an intensive routine ex-  
amination of patients whose chief complaint  
was severe intermittent abdominal pain. In  
many of these, the symptom-complex strongly  
suggested intra-abdominal surgical disease. All  
but two had repeated positive Wassermanns or  
changes in the spinal fluid characteristic of spe-  
cific disease.<sup>1</sup>

The degree of pain, intensity, duration, and  
position, has naturally varied greatly. This  
may bring into question my right to call them  
all "Gastric Crises." This will depend upon  
how narrow an interpretation is put upon that  
term. The title of this paper is misleading if  
we restrict the use of the term to that type seen  
most characteristically in 30 to 40 per cent of  
well developed tabetics. No one any longer  
questions the etiological role played by lues in

the development of tabes. It is well known  
that many years intervene between the original  
infection and the full development of the dis-  
ease syndrome. Osler mentions an instance of  
occasional lightning pain which preceded the  
full development of Rombergism, pupillary  
changes and absence of the knee jerk, by fully  
ten years. Newer forms of treatment have  
shown us the way to at least greatly alleviate  
many of the awful and disastrous sequelae of  
lues. Not a few people doomed to hopeless in-  
validism have been returned to usefulness by  
persistent and judicious treatment. Some cases  
proceed to a fatal issue with luetic disease with  
alarming swiftness. I recall a young man, aged  
26, who in the short space of eighteen months  
after the development of a chancre had gone so  
far with his nerve lesion as to have a double-  
sided subluxation of the hip joint. The rule,  
however, is for the disease to proceed very  
slowly. A perusal of the data of this paper is  
respectfully suggested, with the idea in mind  
that abdominal pain may be one of the signs  
indicative of luetic virus in the body. Whether  
any of them will go on and ultimately develop  
the full signs of tabes is beside the question. I  
wish it to be definitely understood also that no  
attempt at this time is to be made to explain  
the pathology represented. Whether the con-  
dition in all cases is a true luetic lesion of the  
central nervous system or a toxic influence cen-  
trally or peripherally manifested must be some-  
thing difficult to dogmatically enunciate or  
clinically prove. It will not be attempted. It  
will be seen that the earlier cases have lesser  
degrees of pain and longer intervals of freedom,  
gradually only developing the associated diag-  
nostic criteria, such as Rombergism, girdle  
sensations. One of the striking lessons to be  
learned is the amount of surgery that has been

\*Read before the annual meeting of the Minnesota  
State Medical Association, October 11 and 12, 1917, St.  
Paul, Minn.

<sup>1</sup>This group might be made much larger were it not  
that only those cases are included that remained un-  
der observation long enough so that anti-specific treat-  
ment has added additional weight to the diagnosis of  
lues. In view of the growing skepticism accorded  
Wassermann studies in general, it should be strongly  
insisted upon that the therapeutic test for lues is just  
as good now as it was in pre-Wassermann days.

done or advised on these patients. The diagnostic and therapeutic responsibility is unmistakable, and if old tabetics can often be greatly helped, we should stand a chance of doing much more for these, at the same time accomplishing something prophylactically.

A discussion of the mechanism by which true crises are produced is similarly interesting, but inconclusive. It is surprising how indefinite the literature is on this point, or how guardedly men well qualified to give an opinion are in expressing their opinions. The pathway of sensation in any intra-abdominal pain must be essentially complicated. It is assumed by many that the so-called "girdle" sensation is an expression of true "root pain," following upon a diffuse lesion of the posterior fibres of the cord. Using this as an illustration of the general indefiniteness of the pathological physiology involved, it can be stated that the pain in herpes zoster, which is definitely known to be the result of pathology in the posterior nerve roots, is clinically quite different from crises. The mechanism of pain registration in hollow viscus organs can well merit attention. Meltzer's crossed enervation theory is ingenious; the role played by spasm in the colic of gallbladder disease or ureteral stone, receives confirmation by the researches of Carlson and his school (studies growing out of their original work on "hunger pain"). I have on occasion witnessed a man with gastric crises under the fluoroscope with a stomach filling. The organ was in a state approaching tetany at the height of his pain. Lyon<sup>2</sup> reported instances of gastric crises due to spinal lues, in whom the passage of a small duodenal tube into the stomach allowed the contained air to escape and thus relieved tension, promptly terminating the attacks. This is in keeping with Bevan's reported instance of severe ureteral colic, terminated by a kidney drainage without removal of the stone, to again recur when the drainage became temporarily blocked.

Since it is the writer's desire to emphasize particularly those cases in which violent abdominal pain was their most striking symptom, only six true tabetics are included. These are presented chiefly to show, (1) the length of

time they had symptoms, (2) associated lesions they presented, (3) variability and intensity of their pain and distribution, (4) their surgical interest.

A large number of irregular cases have not been included in this report at all. (1) Because, while they had more or less abdominal discomfort, it was not their dominant symptom, or the patient did not remain under observation long enough to furnish reliable data; (2) those having a good deal of abdominal pain, but having enough additional pathology, often surgical in character, to confuse the issue, and to make less reliable conclusions known to benefit from a combined surgical and antispecific therapy.

In order to avoid a detailed individual discussion of these cases, each of which often presents a problem of its own, an attempt will be made to classify them in groups. Whether by chance or not, these sub-groups seem to bear out the reputation lues has for copying true organic diseases. Not that these gallbladder symptoms, for example, copy in all details that of true gallbladder disease, but, carelessly taken histories or hurried examinations may, and often do, confuse them. We can usually safely say that with conscientious examinations, proper serum studies, a judgment of the patient's reflexes, pupils, areas of sensation, etc., confusion will rarely be necessary for very long. A differentiation in the way of sex and age, and length of time they have had symptoms, offers some additional information, and this will be tabulated. In all there were 30 females and 15 males.

I. Stomach Group—Some simulating ulcer; others giving the findings of a so-called "neurosis:"

a—Ulcer .....	6
b—Neurosis .....	2

Total..... 8

Females 5; males 3.

Average age ..... 30 years

Average duration of symptoms. .396 "

Illustrative Case: (a) Male, aged 32, admitted lues five years previously. Vigorous anti-specific treatment for 1½ years. He then left his attendant, who had given him very good treatment, and sought relief elsewhere for an indefinite abdominal disturbance with *epigastric pain*. Ulcer was suspected, and

<sup>2</sup>Gastric Crises of Spinal Syphilis—Meeting A. M. A., New York, June 7, 1917.



he was explored by a surgeon of national reputation, and in the absence of any signs of ulcer, the appendix removed. He was some better for a short time. Six months later, planning marriage, he had several Wassermanns taken, two of which were made at the State University under the best of control, and all were found negative. On this basis he married. Four months later, very severe headaches brought him to me for further advice, and two blood Wassermanns were negative, one after the provocative use of mercury, and it was my conclusion that his basilar headache was probably of neurasthenic origin. Within two weeks, however, he began to vomit profusely, and a spinal puncture was done, yielding a four plus Wassermann of the spinal fluid, a positive globulin, and 184 cells over 3 in the spinal fluid count. On this basis vigorous anti-specific treatment was instituted, with a return to health, which has been maintained since, although intensive treatment has been necessary to keep him well.

## II. Gall Bladder Type:

a—Giving symptoms suggesting stone...	12
b—Giving symptoms suggesting cholecystitis (without stone).....	6
Total.....	18

Males 2; females 16.

(Note great predominance in females).

a { Average age .....	38 years
Average duration of symptoms	5 "
b { Average age .....	35.5 "
Average duration of symptoms	1.8 "

Illustrative Cases: (a) Female, aged 38, divorced. A very long history of abdominal pain following upon four pelvic operations that had been performed four years previously, and a gastroenterostomy done for relief of stomach symptoms one year previously. It is probable that the surgeon in operating had in mind the gall bladder, but finding this apparently healthy, for some reason did a gastroenterostomy. When she came under my care she had in addition to recurring attacks, severe abdominal pain centered over the right upper quadrant, severe nocturnal headaches, a moderate anaemia, and a general sense of extreme weariness and total loss of interest in life. Four Wassermanns of the blood were all four plus. Vigorous anti-specific treatment has returned her to health. Whereas she had severe abdominal pain at intervals of every four or five weeks, she has had none now for over a year.

It should be stated here that close observation of one of these patients in an attack reveals several striking differences between these attacks of pain and true gall bladder disease, either that of stone or caused by inflammation. The patient localizes his pain in the G. B. region, but there is usually no definite tender-

ness; the pain radiation is not so distinct nor onset so sudden. As a rule, the patient will complain of a general discomfort, which is not affected by position—in fact he is apt to be up and walking around—and the pain is likely to persist longer, gradually fading away much as it came on. In addition to these points of difference, there is never associated the signs of inflammatory disturbance so characteristic of true gall bladder disease.

(b) Female, aged 40. Had had recurring attacks of vomiting with "bilious" headaches. Three physicians had advised her definitely to have the gall bladder removed, stating that the attacks were not severe enough for stone but that the stomach symptoms were typical of gall bladder disease and that a chronically inflamed gall bladder would probably be found. On examination I found peculiar scars in the region of the left knee, and she stated that she had been treated for a rheumatism of the left knee 17 years previously. Three blood Wassermanns in succession were four plus, and the patient in a period of three months has made a very striking improvement. Not only has she lost her so-called "indigestion," but she now recalls that she is better in many other ways, including pain in the left leg at night, and tendency to headache (usually more severe at night), and a freedom from a general tendency to aches in the shoulders and back which she had grown so accustomed to that she didn't even mention it at the first consultation.

## III. Duodenal Group—Simulating ulcer or pyloric obstruction:

a—Pyloric obstruction .....	3
b—Simulating ulcer without obstructive signs .....	2
Total.....	5

Females 3; males 2.

Average age .....35.4 years

Average duration of symptoms...5.65 "

In explanation of this group, organic pathology was demonstrated in only 1, and this roentgenologically. Two women had marked delay in emptying time of the stomach, with absolutely negative stomach contour, and with a normal duodenal cap easily visualized and showing no defects. Both of these made striking improvement under treatment, and this improvement has remained after two and one-half years. At the same time, it is important to note that even after that time both of these patients retained nearly as much barium residue after six hours as they did when first examined, despite great improvement in their general ap-

pearance and digestive capacity. It can be stated that while a six-hour residue is as a rule evidence of intra-abdominal disease it certainly is not incompatible with reasonable digestion and excellent health.

**Illustrative Cases:** (a) Female, aged 32, giving a history of 3 months of bloating after eating, marked constipation, and a loss of fifteen pounds in weight. A series of four Wassermanns of the blood at weekly intervals all showed four plus. At the end of six hours only half the barium had left the stomach. In view of the blood findings nothing was done except to put her on anti-specific treatment, with immediate and permanent gain. She did better on the old-fashioned combination of Potassium Iodid and Bichloride of Mercury than when an attempt was made with the usual injections of the Salicylates in oil.

(b) Patient, male, aged 27, simulates better true duodenal ulcer. He had been ill one year with an intermittent distress, two or three weeks at a time, with three-hour pain and distress, more especially in the afternoon, and being routinely awakened after midnight by distress in the stomach, which was relieved by the taking of food or soda. The roentgenological evidence showed hyperperistalsis, the stomach empty in six hours, the duodenal cap showing normal contour. Two blood Wassermanns were positive. He improved promptly under injections of Mercury Salicylate. Two months later his wife came for examination, having headaches and general malaise, and she also showed a positive Wassermann.

#### IV. Miscellaneous Abdominal Group:

a—Appendix .....	3
b—Symptoms of ureteral colic, "a true kidney crisis" .....	1
c—Evidence of colitis .....	2
Total .....	6
Average age .....	31.5 years
Average duration of symptoms .....	1.62 "

**Illustrative Cases:** (a) Female, aged 21. Had had an operation on the ovary and appendix five years previously. Recurring attacks of pain, paroxysmal in character, every three or four months since the operation. During the past two years they have greatly increased in intensity and have taken on a broader scope, including severe cramps in the stomach, accompanied by headaches of the migraine type. Repeated positive Wassermanns drew our attention to the possibility of lues of the congenital type. Much improvement has followed persistent and intensive anti-specific treatment.

(b) Male, aged 25. Severe, right-sided abdominal colic, strongly suggesting ureteral stone. No changes in the urine. X-ray findings negative. Four Wassermanns of the blood in all at weekly intervals were made, all showing four plus. He had lost 45 pounds within five months, and was returned absolutely to

health and his accustomed vigor within three months by anti-specific treatment alone.

(c) Female, aged 44, who came on account of left-sided abdominal pain, which she stated was exactly like a neighbor's, who had a similar pain on the right side and for whom gall stones had been successfully removed. Her diagnosis therefore was gall stones on the left side in her own case. Mucus had been noted in her stools, and she complained of much flatulence, associated with constipation. Two, four plus Wassermanns, were reported. She remained under general observation about six months, and had had no more attacks of pain following two courses of mercury rubs.

(d) A more general pain was encountered in a female aged 33, a teacher—nervous, sleepless, passing much slime, and cramps in both sides of the abdomen. Despite the fact that this woman was intensely nervous, shy and repellant, the daughter of a clergyman in a small town in Iowa, the evidence of persistent positive Wassermanns was utilized in dictating her treatment. She gained 20 pounds in weight, and "could never recall when she had been quite so well, even since a child."

#### V. Tabes:

a—Typical Syndrome of tabes .....	5
b—Definite tabes with evidence of lues elsewhere in the body .....	1
Total .....	6

Males 4; females 2.

Average age .....	46 years
Average duration of symptoms .....	7.3 "
(The longest, 13 years; shortest, 1 year).	

As mentioned earlier in the paper, this very limited number of cases of tabes are entered here only for their casual interest. For one thing, the average duration of symptoms is given as over seven years. This means from the time the patient first felt himself unwell. No doubt, as a rule, signs could be elicited even prior to such event. The milder forms of disturbance here reported would seem to indicate the presence of luetic toxin in the body for a shorter time, whereas those severe abdominal colics, suggesting gall bladder disease, average up over five years, and the true, well developed tabetics, over seven. This is as we might expect. One tabetic is included because in addition to intense gastric crises, Argyle-Robinson pupil, and absent knee-jerk, he had an aortic aneurysm. Two more are included because their gall bladders had been operated upon, and in one instance numerous stones were found. The abdominal wound showed very poor heal-

ing evidently in convalescence because severe abdominal hernia resulted. Billings had made the original diagnosis of tabes. One year later an equally prominent man in surgery overruled him, and as might be expected when high authority speaks, both were right. The patient kept his abdominal colic, however. He has taken four to six Neo-salvarsans intravenously yearly, and 3 courses of mercury injections yearly, and is far better now than he was eight years ago.

It will thus be seen that these cases on the whole do not represent the same demonstrable organic pathology. In a few, who were operated upon for some manifest condition, such as a pelvic disorder, the results of this surgical work were such as not to have much influence or bearing upon the outcome. The anti-specific treatment was the deciding factor in giving the patient improvement.

Very little will be said at this time regarding treatment. No treatment for luetic crises can be of any permanent avail except anti-specific treatment. Whether these cases should have the same intensive treatment as that given to early luetics is an open question. No doubt many of them need it and improve amazingly. On the other hand, there are a few who are greatly damaged thereby, and much individual care must be shown. One great difficulty is to know whether or not to let these patients know what they have, and what you are treating them for.

Speaking generally, it profits us greatly to ask the question again and again: what would we do if we had no anti-specific remedies for lues? It is certain that a great many patients would not go on and die. There must be the same immunizing forces to safeguard the patient against lues as against any other chronic infection. Too little is usually done in the way of looking out for the general hygienic surroundings of the patient. Great benefit often follows the riddance of various accessory annoyances, such as bad teeth, bad digestion, constipation, mental anxiety, and overwork. This may account at times for the great benefit that follows on rather simple treatment. I would urge a word of caution, however, that this is not always the case. Anything that will lessen the liability of development of late tabes or

paresis is worth while. If the awful mental and physical destruction can be avoided in the few, it is justified to intensively treat the many.

#### DISCUSSION.

DR. CHARLES R. BALL, St. Paul: Mr. President and Members of the Society: As I listened to Dr. Tuohy's paper and the presentation of his carefully selected cases, I was impressed with the grasp which he has obtained of this subject. Ever since I began taking particular interest in the subject of syphilis, the thought has been borne in on me more and more of the immense advantage in dealing with your patients, which a grasp and understanding of this subject gives you over your colleagues who do not have this grasp. I must congratulate Dr. Tuohy on his recognition of this fact and the way in which he has developed it in his own work.

In his cases of visceral syphilis which he has grouped under the symptomatology, his experience has been larger than mine. I have not paid so much attention to this type of cases because my work has been largely with cases of nervous syphilis. This is a good opportunity, however, to discuss the subject of gastric crises.

Of course, this term "crisis" is not used in the sense in which we ordinarily use the term "crisis" when we refer to the crisis in typhoid fever or in pneumonia, we use it in the sense that these symptoms come on in definite attacks,—that there are certain times when they develop their intensity, and there is not anything especially different in an attack of gastric crisis so far as the pathology and the etiology is concerned from laryngeal crisis or sneezing crisis or attacks of lightning pains. The difference is entirely in the location of the lesion in the spinal cord. They all belong to the same type.

It is very important to keep in mind in nervous syphilis, especially of the tabetic type, that gastric crisis, or lightning pains, may be isolated symptoms, and may precede any other symptoms by years. So we may have an attack of gastric crisis or of vague abdominal pains, which are hard to understand, long before there are any other definite symptoms of nervous syphilis manifested.

Naturally, then, in differential diagnosis, gastric pain and disturbance of luetic origin are often confused with migraine, gall stone colic, and abdominal pain from other causes.

I have observed attacks of migraine, gall stone colic, and renal colic which resemble very closely a true gastric crisis.

At the present time I have a patient who was operated on a year ago for gall stones because of attacks of severe abdominal pain. At the operation something like 100 stones were removed from the gall bladder. The presence of these stones at the time seemed to confirm the diagnosis of gall stone colic but since the operation the painful crisis has continued just the same.

This patient has a well developed tabo-paresis.

I believe we all realize the difficulty in differential diagnosis in the painful crisis of abdominal origin. Unless we are very sure that we know the source of the attacks I would like to urge the importance of a spinal fluid examination in which all the reactions are made. Where gastric crises are isolated symptoms, and they frequently are, it is only in this way that a positive differential diagnosis can be made.

DR. J. W. ANDREWS, Mankato: I do not rise to discuss these papers for the purpose of giving any new thought, but because I am deeply interested in the subject, and my mind naturally runs in reference to cases which I have had which simulate some of the cases which have been mentioned here. If I misunderstood Dr. Tuohy I want to be corrected, but I understood him to say that he did not rely upon the Wassermann independent of symptoms, that if the symptoms did not bear out the positive or negative Wassermann, as the case might be, that he did not rely upon the Wassermann. Is that true? Are we getting back to that, that we must use mercury or iodide of potassium for a few weeks in order to determine whether we have a case of syphilis or not? Is that the status of the profession today?

I heard one physician say this morning that when he attended a medical society he wanted to hear something about common cases, cases that he had in his practice, and here is an opportunity. Every physician present has case after case of gastric crisis. He does not know the cause, maybe, he does not know quite how to diagnose it, but he has the cases, and it is of the utmost importance that he makes a clean-cut diagnosis and not say, "We will open and see what is the matter." There is too much of that, "Make a diagnosis after the abdomen is opened." And I will tell you, gentlemen, the man that does that does not usually make one unless it is very easily made, after it is opened. The time to make the diagnosis is before.

I knew one patient that had repeated gastric crises. The reason was hyperchlorhydria. There was so much acid in the stomach that it caused severe pain, simulating gall-stone colic, and consequently the patient was operated upon and no gall stones were found; there was nothing the matter with the gall bladder. A later and better diagnosis developed the real cause of the trouble.

I am not going to take the time to discuss this further, but I would like to have this point cleared up; is the situation of the profession today in regard to syphilis like it is in regard to tuberculosis? That is to say, these signs, these evidences, these tests for tuberculosis have come to nothing? We know that they are of but very little value. How about the Wassermann? Are we beginning to lose confidence in that?

DR. N. L. LINNEMAN, Duluth: This paper has been so thoroughly discussed that I feel that I have not anything to add. One thing I would like to bring out which I think has been omitted, namely, the

character of the pain in the gastric crises. If you will examine the patient over the region of the gall bladder you will find that in gastric crises there really is no pain on pressure where in gall bladder colic you will find these people to be especially tender.

The thing I particularly wish to speak of is, what are you going to do to prevent late syphilis?

Dr. Ramsey just read a paper and the heading of it was, Some of the Fallacies in Pediatrics, which impressed me very much, because we also have fallacies in the treatment of syphilis. The general practitioner as a rule does not treat this disease properly. It is not that he could not do so if he just took a little more pains, but he is a busy man and simply neglects this important part of medicine.

We have another class of men, unfortunately, who pose as Syphilographers, and make syphilis their specialty, who are absolutely dishonest, which is a very unfortunate situation. For instance, a person will go to them who has syphilis, and will be guaranteed a cure for seventy-five or one hundred dollars.

This treatment usually consists of one or two doses of Neo-salvarsan and some pills, or perhaps a dozen of intra-muscular injections. By this time the symptoms temporarily have disappeared, the patient pays his money and goes about his way, thinking that he is cured.

This person may have missed the opportunity of being cured, because he was misled.

Dr. Fordyce thinks the success in treating this disease depends entirely upon the first six months of treatment. He means by this if it were treated properly the first six months the disease would be under control and by following up the treatment after that a cure could be effected. What cases are apt to develop nervous syphilis?

Some physician in the army, whose name I cannot recall just now, made spinal punctures in a large series of syphilis during the secondary stage. He found that a certain per cent of these had a positive Wassermann of the spinal fluid at that time, and he argued that those were probably the cases who develop nervous syphilis later. Whether that is true or not there must be something in the early involvement of the spinal cord.

The Wassermann test, as Dr. Tuohy has said, has been a great aid in our work.

There is no question that quite a percentage of nervous syphilis will show a negative Wassermann when the spinal fluid will be positive. If these cases are not followed up thoroughly they are apt to be confused with transverse myelitis and multiple sclerosis, for which there should be no excuse, if the proper examination is made.

I know of several of these cases that have been treated for syphilis and of course without results.

DR. E. L. TUOHY (closing the discussion): The argument and the recital of clinical cases will of course appear in the paper when it is published, and it is manifestly impossible to give more than the most sketchy statement here.



The fundamental idea I want to bring out is that there are a great many instances in which syphilitic toxine in some manner or other, the pathology of which must remain obscure, is giving symptoms of intra-abdominal disease.

Certain of these are being subjected to abdominal operations and otherwise mistreated. Dr. Nuzum in a report from the Cook County Hospital, Chicago, reported a thousand cases of tabes, of which eighty-seven had had abdominal operations. It is true that some patients do have more than one sickness at the same time. There are not a few instances on record of gall stones in tabetics. Some of the cases in my report illustrate this well.

Cholecystitis is a clinical entity which in its milder grades is most difficult to identify, and concerning which there can be much difference of opinion. Concerning those which on removal show demonstrable pathology, even of the milder grades, there can be no great difference of opinion, but it is of interest to remark that this is the "open season" for gall bladders. A very safe rule is to be guarded in estimating the pathology present, in any instance where the clinical signs and physical findings do not well conform to the reasonable standard set by experience. It is in these atypical cases that you should keep well in mind the possibility of crisis.

The Wassermann is more reliable than any tuberculin test, and yet of course it has many limitations, like all other laboratory procedures. Too much reliance is probably placed at times upon an isolated report, either positive or negative. Numerous investigators have shown that the same blood may be positive and negative within very short intervals. The use of provocatives is now well understood. If I, as an internist, could not have the opportunity of making thorough examinations in every other way as well, and to follow up and repeat the Wassermann again and again, I would rather not have it made at all. Some of these cases have had as many as eight to ten Wassermans made.

## FRACTURES OF THE SKULL.\*

ROBERT EARL, M. D., F. A. C. S.,  
St. Paul, Minn.

Fractures of the skull vary in character and gravity according to various circumstances. Thus, the situation of the fracture is of importance, the chief point being whether it involves the vault or the base. The fracture may be a slight, simple fissure or a very extensive comminuted fracture; it may be complete or only one table may be injured; the broken pieces may or may not be depressed. The character

of the instrument which inflicts the injury is also of great importance.

The effects of injuries which are sufficiently severe to produce a fracture of the skull are not limited to the bone itself. When we speak of fracture of the skull, we include injuries to the brain under the same heading, as they are practically inseparable. Various complications may ensue; among the most important are concussion, laceration and compression of the brain; septic complications, such as cellulitis of the scalp, leptomeningitis, cerebral abscess; hernia cerebri; paralysis of motion, sensation or special sense, subsequent mental derangements, persistent headaches or traumatic epilepsy.

The inner table is always more extensively broken up and more detached than the external, so that the amount of injury evident externally does not fully indicate the amount of damage in the deeper parts. The impending type of fracture produces more extensive separation of the inner table, which fact can be illustrated by the break on the convex surface of a green stick.

In a punctured fracture a small hole in the external table is all that is noticeable from the outside, but the inner table is usually considerably detached and the fragments project against the dura mater, and may even perforate it, in which case their sharp edges may project into the brain itself. It is important to remember that, however insignificant the external wound appears, there is certain to be considerable and serious damage to the inner table, which must be remedied. In these cases also, the instrument itself is very likely to puncture the dura mater and lead to hemorrhage from the vessels in it, or even from those on the surface of the brain.

The classification of cranial fractures into simple and compound fractures has a direct bearing on the diagnosis, prognosis and treatment.

In compound fractures of the base, we are able to accomplish little in the way of prevention of infection. In compound fractures of the vault, we are in a position to combat infection to a material extent.

Fracture of the base is much more frequently associated with fracture of the vault than is

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commonly supposed. Dr. Besley in a recent article in the *Journal of the American Medical Association* says: "In my analysis of seventy-four cases at autopsy, there were sixty-five of the base, sixty-three of the vault and an association of both types in fifty-four cases, or 72.9 per cent. In one thousand clinical cases an association was recognized in only 33 per cent, showing the difficulties of diagnosis of the exact location of the line of fracture."

The signs of general intracranial pressure produced by bleeding or edema are usually present, as manifested by unconsciousness, slow pulse, embarrassed respiration, high blood pressure, choked disk and vomiting. These signs are more or less apparent and marked, depending on the amount of hemorrhage and edema. In fracture of the base, a wet, edematous, swollen brain is the most frequent and may be the only apparent cause of death. After death from an edematous brain, the edema usually rapidly disappears. Therefore, if a postmortem is not made immediately after death, a normal appearing brain may be found. The focal signs are entirely dependent on the area of brain that may be involved from laceration, pressure or from blood clot. Signs of compression or focal signs of cortical injury strongly indicate fracture of the skull, but may occur independent of bone injury, being caused by hemorrhage or laceration of brain tissue. In fractures of the skull the prognosis is much more favorable when the dura ruptures than when the dura remains intact, as this permits of the escape of blood and cerebrospinal fluid, thereby providing a safety vent which prevents excessive intracranial pressure. In concussion, the unconsciousness develops at once and tends to decrease with time. In hemorrhage, the unconsciousness gradually increases with time. Therefore, a deferred or gradually developing unconsciousness, or a free interval of consciousness subsequent to a primary period of unconsciousness again followed by deep unconsciousness indicates a progressive active hemorrhage and pressure. This results most frequently from injury to the middle meningeal artery, and this artery is rarely involved without an associated fracture.

Hemorrhage may be the only evidence of a fractured base. After any head injury, imme-

diately inquiry should be made for bleeding from the ear, mouth or nose.

In bleeding from the ear, it is necessary to be sure that the blood does not originate from the auditory canal. If there be but little blood in the canal, it may have been caused merely by a ruptured tympanic membrane, which can occur without a fractured base. More profuse or persistent bleeding, however, points with great probability to a bone injury, which indicates a fractured base, unless the external auditory passage has itself been severely wounded.

Hemorrhage from the nose and mouth is only significant when the injury has not directly involved the face. If such an injury can be excluded, it points to a fissure in the ethmoid, sphenoid, or anterior part of the basilar process of the occipital bone. Exceptionally, the blood might come from the Eustachian tube.

Diagnostic importance is attached to subcutaneous effusions of blood as well as to its immediate escape externally. Their situation and their mode of onset are both significant. They usually appear in the region of the orbit and mastoid process. It requires some few hours for the blood to reach the superficial tissues; occasionally it takes a few days.

The advisability of making a spinal puncture in all cases of suspected skull fractures comes into question. When blood is found in the spinal fluid, it is highly presumptive evidence of the existence of a fracture. The procedure, however, is by no means free from danger, especially in those cases in which there is a marked increased intracranial pressure. The danger is that with the relief of pressure within the spinal canal, the medulla and pons may be forced into the foramen magnum and constricted sufficiently to cause immediate death. This danger, however, is not so great in traumatic injury cases as in brain tumor cases. If a positive diagnosis is not arrived at from other evidence, a spinal puncture should be made. In this connection I wish to say that in the less severe degrees of intracranial pressure resulting from injury, repeated spinal punctures at times give marked relief from stupor, headache and delirium by reducing the increased intracranial pressure.

Unless the X-ray is used, many fractures of the skull will not be diagnosed. The X-ray has frequently demonstrated this lesion where there were no symptoms, and it is important to recognize fracture on account of remote sequela, etc.

Every X-ray examination should cover the frontal, parieto-temporal, occipital and basilar regions, whether there are objective symptoms pointing to these regions or not.

Percussion of the skull is an aid in diagnosing fracture of the vault as it often brings out a cracked-pot sound. To secure the best results, the head should be shaved; if the patient is conscious, he should sit up and keep the mouth closed; if unconscious, the head should be supported at the occiput. Hematoma and edema of the scalp will interfere with this test.

The treatment of mild cases of linear fracture and the treatment of concussion should be practically the same. In all cases the treatment of the accompanying shock should receive first attention.

In all cases of fracture of the skull the patient should be given absolute rest in bed in a quiet darkened room. All relatives and visitors should be excluded and if the patient is very restless and delirious, small doses of morphine should be given hypodermically. If the patient has just eaten a meal or is an alcoholic, a gastric lavage is indicated. The bowels should be emptied by enemas followed by saline catharsis.

The head should be kept low and an ice-bag applied to lessen the circulation and to diminish the cerebral edema, thereby lowering the intracranial pressure.

In all lacerated wounds of the scalp, it is important to shave well beyond the margins of the wound and cleanse it very thoroughly; after which, it should be sutured very loosely and drain provided. Unless these precautions are taken, there is great danger of a meningitis developing.

If there is hemorrhage from the nose and mouth, these cavities should be swabbed with a weak solution of silver nitrate. They should never be irrigated, as septic material may be carried into the wound. Blowing of the nose should be avoided, as it forces secretions and infections through the fissure, even considerable

quantities of air have been forced into the cranial cavity.

If blood or cerebrospinal fluid escapes from the ear, the meatus should be carefully wiped out with iodine and a pledget of sterile gauze or cotton should be placed in the external auditory canal. The ears should not be plugged tightly with gauze or cotton, as this will only dam the fluids back instead of allowing their free and prompt escape. Aural bleeding is of importance, both as a diagnostic and prognostic sign. Crandon and Wilson found that in cases of hemorrhage from one ear there was a mortality of 39 per cent, while when it occurred from both ears the mortality was 66 per cent.

In fractures of the skull with a lacerated scalp wound together with a fissure of the vault, do not omit to open up the wound in the direction in which the slit in the bone extends; it may be that a little farther it changes its character, and if it be found that it runs towards the base, the knowledge is certainly worth the enlargement of the wound.

If the fissure is narrow, the bleeding has ceased, and no characteristic cerebral symptoms are evident, complete the cleansing of the wound, and bring the edges together with a few points of suture, but do not close it completely. Always reserve the prognosis, especially if the patient is still suffering from concussion.

Fissures of the outer table must always cause us to suspect the existence of others, more extensive and more dangerous, of the inner table. Therefore, if the impact has been very violent, if the crack in the bone is rather wide and the edges are not level, if blood continues to flow from it, if hair or dirt is caught in it, do not hesitate to open up the seat of fracture in order to explore and cleanse it. This should be the treatment for every complicated fracture; when dealing with the skull it is more definitely indicated than anywhere else.

Remove broken pieces of bone, and explore the inner table of bone and the dura along the course of fracture, so as not to overlook any depressed pieces of the inner plate or any blood clots.

It is important in removing detached fragments, to take care not to tilt them, otherwise their sharp edges may lacerate the dura mater;

they should be drawn out very gently, and nearly parallel to the surface of the skull.

If the dura mater is intact and normal in appearance, nothing more is required and the wound may be partly closed, provided the intracranial pressure is not excessively high.

In another case, under the scales and fragments of bone, the dura may be found torn and the brain exposed, or even contused and lacerated, and perhaps broken-down brain tissues mixed with clots and osseous debris escape through the wound. In this event, cleanse the cavity gently and finish as before, refraining from closing the wound completely.

In default of these measures the patient will be exposed to the onset of meningoencephalitis, or to various late and very serious troubles, of which Jacksonian epilepsy is a type.

In the treatment of depressed fracture, it may be laid down as a rule that the depressed fragments should be elevated or removed, any detached portions of bone taken away, and all hemorrhage arrested, without waiting for cerebral symptoms to supervene. Hence, operation is advisable in all cases of depressed fracture, whether the fracture be simple or compound; and the sooner the operation is performed after the patient has recovered from shock the better. Before deciding to operate, we must be positive that we are dealing with a depression from a depressed fracture, as we may have an induration of the scalp simulating a depressed fracture. We also have natural depressions of the skull which together with a swollen scalp may be difficult to differentiate from a depressed fracture.

A case is reported of a patient who fell from a height, and the surgeon wished to explore over a depression; but the patient recovered consciousness and explained, with just apprehension, that the depression had been present since infancy.

When unconsciousness passes off, giving place to a condition of mental dullness, all the limbs can be moved at will; there is no irregularity of the face, speech is slow but correct; there are no focal symptoms; there may be found on the vault or side of the skull a painful spot or fissure; then there is nothing to be done. The practice is, no external wound, no symptoms, no operation.

On the other hand, there must be no hesitation when symptoms of cerebral compression are associated with a local cranial sign.

Until recently the usual treatment of fracture, whether of the vault or base, was palliative, about the only exception being that in depressed fractures of the vault, the depressed bone was raised or removed.

Undoubtedly many cases of mild fracture of the skull are overlooked because of the comparative absence of symptoms and signs. In these mild cases of fracture and in the cases of simple concussion the palliative treatment is successful. In the cases of fracture, whether at the base or vault, in which there are definite signs of paralysis of the extremities or cranial nerves, and increased intracranial pressure, palliative treatment is not sufficient.

If the patient is in a condition of shock following the accident with a pulse of 120 or more, all effort should be directed toward overcoming this shock. After the patient has recovered from the shock, examination should be directed toward determining whether or not there is a marked increase in the intracranial pressure. The most reliable sign of increased intracranial pressure is found in the fundus, the so-called "choked disc," which can only be discovered by the use of the ophthalmoscope. Following injury it requires time for the early stages of "choked disc" to develop, six hours being considered as the minimum.

When there is a "choked disc" with other symptoms of increased intracranial pressure or localizing symptoms, following an injury to the head, it means that it is due to an intracranial hemorrhage or to an edematous swollen brain. In these cases whether or not a fracture has occurred, an early subtemporal decompression with evacuation of blood clot if present must be made to save the patient from death by compression and impaction of the medulla into the foramen magnum. If operation is delayed until the medulla is impacted the mortality will be very high.

In a recent article, Sharpe says: "Any operative procedure for the relief of the intracranial pressure should be undertaken while the pulse rate is descending, at 60 or below, for once it has reached its lowest level of medullary compression, the danger of a medullary edema is

great. If it does occur, the pulse rate begins to rise rapidly, and I have yet to see a patient recover, whether or not operation is performed, once the pulse rate has descended to its lowest level and then begun to rise rapidly. The danger of the operation while the pulse rate is descending is far less than the danger of the possible onset of the signs of a medullary edema, the mortality being then practically 100 per cent."

An early decompression will not only save life, but will prevent a large percentage of post-traumatic conditions so frequently following fracture of the skull, as headaches, marked depression, irritableness, dizziness, epilepsy, etc., conditions due in the majority of cases to the resulting, unrelieved, increased intracranial pressure prolonged over a more or less extended period and frequently resulting in chronic edematous swollen brains. If the patient requires a decompression and has a depressed fracture or evidence of a blood clot together with an infected scalp wound on one side of the head, do a decompression on the uninfected side first, and then elevate the depressed fracture or remove the blood clot from the infected side after the infection has cleared up.

It is well to remember that in some cases there is no correlation between the seat of the fracture and the peripheral symptoms observed; the fracture is on the right side of the vault; it is also on the right side that a hemiplegia is discovered. The mechanism of contrecoup explains these facts. On the side opposite to that which received the impact and which bears the signs of injury, there is an effusion of blood or an area of cerebral contusion. In these cases it will be necessary to explore over the cerebral areas indicated by the paralytic or convulsive symptoms.

In right-handed individuals the decompression should be made on the right side unless there are localized signs of pressure over the left cerebral cortex.

In applying the dressings after decompressive operations let us not forget one of the cardinal principles in the treatment of fractures of the long bones, namely, avoid the use of dressings which will not allow for the swelling which is sure to follow the injury.

Barnes and Slocum recommend doing repeated spinal puncture in case of severe head injury, and injecting 60 grains of urotropin intraspinaly.

In 1909, Crowe showed experimentally on dogs that urotropin markedly retarded and acted beneficially in cases of experimentally produced meningitis in dogs. In an article written in 1912, Crowe reports thirty-five cases of compound fracture of the base of the skull in which urotropin was given as a routine measure without a single instance of a complicating meningitis. In contradistinction to this, there occurred during the preceding period and in the same number of patients, nine cases of meningeal infection.

Crowe recommends that in compound fractures urotropin should be given in very large doses well diluted with water both by mouth and rectum; as much as 30 grains in 15 ounces of water may be given by mouth and the same amount by rectum, making an initial dose of 60 grains. After the first dose about 100 grains well diluted with water should be given every twenty-four hours until the danger of infection is past.

In fractures of the petrous portion of the temporal bone, non-infection of the tympanic cavity is of great importance. When there is infection present in the middle ear at the time of fracture, the prognosis is more serious because of the danger of direct infection of the meninges and brain.

In this type of a case, when an extradural hematoma is present, decompression with removal of the hematoma is indicated for the purpose of lessening the danger of infection.

The mortality of fracture of the skull will always be high, as some of the cases have so extensive injuries to the brain that death is inevitable whatever the treatment.

In conclusion, I wish to emphasize that in addition to the usual treatment of shock, control of hemorrhage, prevention of infection, raising of depressed bone and removal of bone spicula, it is most important to early recognize and by decompression relieve a high intracranial pressure, and evacuate blood clots. This is a life-saving procedure, in addition to which it will prevent many post-traumatic complications as



headaches, paralysis, epilepsy, cyst formation, etc.

Permit me to again emphasize that in treating head injuries, we must remember that the fracture or bone injury is not the important point. But that the damage done the brain tissues by laceration, compression from depressed bone, hemorrhage and edema, are the causes of the immediate symptoms, death, and the post-traumatic conditions.

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### LITHIASIS WITH BILATERAL RENAL INVOLVEMENT.\*

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The various conditions in which lithiasis with bilateral renal involvement is present may be as follows:

1. Bilateral nephrolithiasis, including stone in the ureter on one or both sides.
2. Lithiasis in one kidney and disease in the other.
3. Lithiasis in a solitary kidney.
4. Lithiasis in a fused kidney.

#### BILATERAL NEPHROLITHIASIS.

On reviewing the records of the Mayo Clinic from January 1, 1910 to October 1, 1917, it was found that 62 patients had been operated on for bilateral nephrolithiasis. During the same time 504 patients with unilateral lithiasis were operated on, making a percentage of 12.3 of bilateral lithiasis occurring in the operative cases.

#### GENERAL STATISTICS.

In the series of 62 patients operated on there were 40 males and 22 females, which is in keeping with the relative occurrence of sex as noted in cases of unilateral lithiasis. The average age

of the patients was 40 years, and the average duration of symptoms was 9 years.

#### LOCALIZATION OF PAIN.

The pain was localized definitely to both sides in only 14 cases, to one side in 26 cases, and in 14 cases to one side recently, with a previous history of more or less definite pain on the other side. Renal pain was absent in 8 cases. The large number in which the pain was entirely or predominatingly on one side (64.51 per cent) should emphasize the necessity of making a complete roentgenographic exposure on both sides in every case of the kidneys and ureters.

#### ESTIMATION OF RENAL FUNCTION.

This may, in a few cases, be of considerable aid to prognosis. Phenolsulphonephthalein is, for all practical purposes, as valuable as any functional test. When the return in two hours is only a trace or persistently very low, the prognosis is necessarily grave, and operation is usually not advisable unless there are urgent indications. We have, however, observed two patients in whom there was a persistent low phenolsulphonephthalein output, 5 and 8 per cent respectively, several years after operation. When the phenolsulphonephthalein return is moderately low, varying from 20 per cent to 40 per cent, I have frequently observed that it will later become much higher following operation. This is particularly true in the presence of marked infection relieved by drainage subsequent to lithotomy, and it may be inferred that toxic absorption as well as reflex irritation may be the cause of temporarily reducing the renal activity. A high return, 50 per cent or more, is of value when clinical symptoms, or the general appearance of the patient, are suggestive of renal insufficiency. Particularly is this true in the presence of marked renal infection with toxic absorption, which frequently causes symptoms simulating advanced renal insufficiency. A high phenolsulphonephthalein return would assure the existence of one good kidney at least. The combined functional test therefore is of practical value only with a normal or extremely low return where the clinical appearance is doubtful.

It may be desirable to determine the comparative degree of function remaining in the two

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kidneys. This is not always possible but frequently may be done, (1) by the size and character of the stone, (2) by cystoscopic inspection, and (3) by a differential functional test.

#### DIFFERENTIAL FUNCTIONAL TEST.

The irritation caused by stone in the kidney will usually interfere greatly with the accuracy of the estimate of renal function. It is difficult to explain the variable degree of reflex inhibition of secretion exerted by renal stone. One kidney containing a stone may have a phenolsulphonephthalein return of but 4 or 5 per cent in fifteen minutes, while another with a stone similar in size and position and with the same degree of infection, may have a normal return. As a rule, small stones of recent origin and without marked infection, will cause comparatively little functional disturbance. Low functional return in the presence of stone is usually succeeded by a normal phenolsulphonephthalein output after the stone has been removed. Renal functional tests can give only an estimate of the functional activity of the kidney at the time of the examination, and not what the kidney is capable of doing under normal conditions. Too much reliance cannot, therefore, be placed on the amount of normal tissue in the kidney, as shown by the phenolsulphonephthalein test. This was well illustrated in one of our recent cases with stone in the left renal pelvis in which the differential phenolsulphonephthalein estimate from the left kidney was 7 per cent in fifteen minutes. From this it might be inferred that considerable healthy tissue remained and a conservative operation would be indicated. At operation, however, a large abscess was found in one pole together with several soft areas in other portions, so that a nephrectomy was clearly necessary. In several other instances in which branched stones were present the phenolsulphonephthalein return was surprisingly good, and on surgical exploration the kidney was found to be so markedly diseased in areas that a nephrectomy was obviously indicated. On the other hand, if the phenolsulphonephthalein return is zero or only a trace, it may usually be inferred that the kidney is so largely destroyed that a nephrectomy is indicated. If, however, the phenolsulphonephthalein test is only com-

paratively low, the functional test is of uncertain value, and unless the other data obtained by physical, cystoscopic or roentgenoscopic examination are of definite value, surgical exploration only will determine whether or not the kidney can be saved.

#### INDICATIONS FOR OPERATION.

After it has been decided that an operation is advisable the question arises: Which of the two kidneys should be operated on first? Rules as follows may be made:

1. In the presence of recent acute pain, repeated and continuous hemorrhage or toxic absorption from advanced renal infection referred to one kidney, that kidney must necessarily be operated on first.
2. If conditions do not necessitate this operation the kidney with the better function should be operated on first in order to take advantage of the function remaining in the kidney on the other side during the acute stages following operation. This is particularly imperative when the stone is so situated that the drainage from the kidney with the better function may be obstructed. When the irritation, infection and danger of obstruction have been removed by the lithotomy, the other kidney may be operated on and removed if it seems advisable.
3. In cases in which the patient is in excellent physical condition, and the stones are of moderate size and advantageously situated, the renal function only slightly reduced and but little or no infection present, both stones may be removed at the same time.

#### PATIENTS NOT OPERATED ON.

There were 33 cases in which a very evident diagnosis of bilateral nephrolithiasis was made, and the patients were not operated on. No operation was advised, for various reasons, in 21 cases, and in 9 operation was advised but the patients did not return. Two patients were operated on for coincident malignancy in other parts of the body, and in one case the patient is awaiting operation.

Two patients had been previously advised of stones in both kidneys, but they had not had symptoms of any kind in recent years. There was little or no evidence of infection in the

urine and the renal function was but slightly impaired. Because of the previous history and evident tolerance of these patients it did not seem best to remove the stones. In the presence of large or multiple stones which are not causing acute pain suppuration or hemorrhage, the advisability of operation is questionable. The patient acquires a tolerance to the stones and will often have a better prognosis than if they are removed. If the stones are small and the function is not too greatly diminished, operation may be advisable in spite of the fact that there are no acute symptoms. If, however, there is considerable kidney destruction, the removal of large stones causes so much damage to the kidney tissue that death frequently results soon after operation. The possibility of stones recurring and then being situated so as to cause urinary obstruction, must also be considered.

#### PATIENTS OPERATED ON.

Both kidneys were operated on in 33 patients, and one only in 29 patients. Seven of the 29 patients were advised to have both kidneys operated on but they refused. In the remaining cases either the stone was so small that it was believed that it would be passed spontaneously, or the condition of the patient did not permit of operation. Five of this group passed the stone from the other side spontaneously. The destruction of renal tissue consequent to the search and removal of very small stones is so great that it is usually best to await further developments, providing the patient can be kept under observation. When it is found advisable to remove such stones, pyelography has proved of great aid in their identification and localization.

#### NEPHRECTOMY.

In 22 patients a nephrectomy of one kidney was found advisable because of the advanced destruction of the organ. In 7 of these patients a nephrectomy alone was made; in 15 it was found necessary to do either a pelvolithotomy or nephrolithotomy on the other kidney.

#### POSTOPERATIVE RESULTS.

There was no operative mortality, which would indicate that patients with bilateral nephrolithiasis, when properly selected, offer

no greater operative risk than with unilateral lithiasis. There were ten deaths reported subsequent to operation, all within less than a year, the majority presenting clinical evidence of renal insufficiency.

#### SUBSEQUENT EXAMINATION.

Twenty patients were examined at varying times following operation, and recurrences were found in 5. In correspondence with other patients, 3 gave a history of having passed stones from the kidney operated on, and 4 gave a history of severe pain, which we regarded as probably due to recurrence, thus making the total number of recurrences 12 (19.35 per cent). A previous review of patients with unilateral lithiasis showed a total recurrence of less than 10 per cent. It is evident therefore that the recurrence in bilateral nephrolithiasis is fully twice as great as with unilateral lithiasis.

In the 22 cases in which it was found necessary to do a nephrectomy because of calcareous pyonephrosis, six patients died within a year following operation. The prognosis therefore, in cases of advanced calcareous pyonephrosis on one side is very grave. Subsequent examinations were made in 5 of these patients, recurrence being noted in but 1. Later letters were received from 3 patients; all of whom appear to be fairly well.

#### UNILATERAL LITHIASIS WITH DISEASE IN THE OPPOSITE KIDNEY.

There were 15 cases of stone in one kidney and disease in the other. This group does not include a large number of cases in which an occasional pus-cell was found in the catheterized specimen from the opposite kidney. A few pus-cells are easily picked up by the ureteral catheter from the bladder-fluid and should have no practical significance provided other cystoscopic data are negative, and the function of the kidney is found to be normal. But with definite evidence of infection and disturbance in function in the other kidney the question may arise whether or not operation would be advisable.

Among the various conditions found in the opposite kidney, pyelonephritis to a moderate degree was found in 6 cases, pyonephrosis to such an extent that the kidney was functionless in 5, hydronephrosis in 3, and tumor in 1.

## STONE IN A SINGLE KIDNEY.

In 7 patients with only one kidney, a stone was removed. In 5 of these nephrectomy had been done elsewhere some time previously, in the other 2 there was no evidence of the existence of the opposite kidney, and there was no clinical evidence of previous renal disease so it may be inferred that the condition was congenital solitary kidney. In 3 of the 5 cases in which a nephrectomy had been done this was necessary because of pyonephrosis, in 1 because of hydronephrosis and in 1 because of acute pyelonephritis. The operations performed on the single kidney were nephrolithotomy 3, and pelviolithotomy 4. In one of the cases of nephrolithotomy the patient was operated on three times for recurring stone, extending over a period of six years. The patient died seven years after the first operation. One other patient was also operated on for repeated stone, but is now alive and well. This illustrates the great degree of tolerance which a single kidney may have for removal of recurring stone. One patient developed uremia one month after operation and died. One patient had a subsequent x-ray examination, which was negative. There was no subsequent data in the remaining three cases.

## HORSESHOE OR FUSED KIDNEY.

Five patients were operated on when lithiasis was found in a fused or horseshoe kidney—in 4 the lithiasis was confined to one-half of the kidney, and in 1 there was a stone in both sides of the kidney. In 2 patients with unilateral involvement, secondary infection had advanced so far that bisection of the kidney was necessary. In 2 a pelviolithotomy was performed. In the case of bilateral nephrolithiasis, heminephrectomy was necessary, and a stone was removed from the lower ureter by cystoscopic manipulation on the other. Three of these patients are alive from one to five years after operation.

## SUMMARY.

1. In 17.2 per cent. of the patients in this series there was bilateral involvement. The percentage of bilateral lithiasis was 12.3.

2. Bilateral as well as unilateral lithiasis occurred twice as often in the male as in the female.

3. Pain in bilateral nephrolithiasis was unilateral in 64 per cent and absent in 12.9 per cent of the cases.

4. Bilateral stones were found most frequently in the pelves and calices.

5. Combined renal functional tests were of practical value only when normal or extremely low.

6. To ascertain the comparative degree of function in the two kidneys, the functional test was of value only when it was zero or a trace, normal or excessive.

7. The functional test, x-ray examination and cystoscopic inspection may be insufficient to determine the degree of healthy renal tissue remaining, and exploration only can determine this.

8. Indications for operation: (a) The kidney with acute complications should be operated on first; (b) without acute complications the kidney with the better function should be operated on first; (c) occasionally simultaneous bilateral operation is advisable.

9. Patients may be inoperable because of renal insufficiency, secondary infection, kidney destruction or constitutional complications.

10. Patients with large bilateral stones causing no symptoms or complications are better off without operation.

11. The operative mortality in this series was zero; the total number of deaths after operation 10; these patients died less than a year following operation. The operative mortality with calcareous pyonephrosis is much greater than with other forms of bilateral lithiasis.

12. The recurrence in cases of bilateral nephrolithiasis was 20 per cent; in unilateral lithiasis, as previously reported, it was 10 per cent.

13. When there is stone in one kidney the most common forms of disease in the opposite kidney are: pyelonephritis, pyonephrosis and hydronephrosis.

14. With unilateral lithiasis the opposite kidney may be so badly diseased that a preliminary operation may be advisable on that kidney.

15. Stone secondary to pyelonephritis, when removed, prevents further renal destruction but is not of curative value.

16. When the nephritic element predominates, removal of the stone is not of much therapeutic value.

17. A single kidney has a great degree of tolerance for repeated operation for stone.

18. In a single kidney the phenolsulphonephthalein output usually remains high in spite of the presence of an uncomplicated stone which is probably due to compensatory hypertrophy.

19. Fused or horseshoe kidneys permit of repeated operation for lithiasis which may if necessary include hemi-nephrectomy.

#### DISCUSSION.

DR. H. P. RITCHIE, St. Paul: Mr. President and Gentlemen: When Doctor Braasch kindly asked me to discuss this paper, I looked over our series of cases. Although considerable, they do not approximate the great number of the Mayo Clinic. I was surprised to find so small a number of bilateral renal lithiasis. This was a surprise because we have, I thought, rather a large number. The reason is that each one is more individual; they required such elaborate methods of examination and such nice surgical judgment that we are inclined to remember them. They influence us in an ordinary case of stone in the kidney to make a most complete examination, because an operation on the kidney for stone or anything else without sufficient evidence we are sure at some time to pay the penalty. I think that in most of these cases the situation can be demonstrated by the tests of which Doctor Braasch has spoken. My experience in this work goes back to precystoscopic days. I can recall several tragedies which occurred which would not occur today. It is a remarkable thing that bilateral lithiasis can go on without bringing particular attention to the kidney.

A case I have in mind is now under observation. The patient came with abscess over the right hip but no bone lesion found. This was opened with improvement. She eventually developed recurring attacks of fever and chills, with signs of something high up in the abdominal cavity,—a subdiaphragmatic abscess. I aspirated the abscess. I followed my needle down into the kidney and found pus. I took out twenty-five stones.

Although several X-rays had been taken, none of them included the kidney. Later pictures showed stones in the other kidney. The progress after the first operation was so rapid that I attacked the left and removed a number of stones with the result that now there is every indication of her full recovery to health.

#### RESPONSIBILITIES OF THE MEDICAL PRACTITIONER TO THE STATE, PROFESSION, AND PATIENT, AS RELATED TO MALPRACTICE.\*

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Of the Professions, the Profession of Medicine and Surgery is the most noble and self-sacrificing. The duties and services of this profession are arduous and continually demand the exercise of the moral, mental and physical energies in the most careful, kind, diligent and faithful manner regardless of the social or economic status of the patient. The responsibilities and obligations are enormous, not to the practitioner alone, but also to the patient, the profession and the state. The responsibilities and obligations are imposed upon the practitioner by the state in the exercise of state licensure, upon the patient by the sacred, private relations necessarily existing between the patient and the practitioner, and upon the profession because of the highest and noblest interests the state has entrusted to the profession of medicine and surgery. The practitioner individually and collectively must maintain the tradition, the high ideals of his profession.

The practitioner must live a life of service and self-sacrifice to bring new hope, cheer, comfort and to relieve suffering and to prolong life. The profession of medicine and surgery has made great progress both as a science and as an art, and naturally and consistently the progressive growth of the profession has added new and greater responsibilities to those of us who have trained and dedicated ourselves to this life of service. Therefore, because of these obligations the conduct and practice of a physician is subject to review and commendation or condemnation by the patient, by the profession and by the state. The great changes in the social conditions are pregnant for good and evil for the average practitioner.

The bastard cults are misleading the ignorant and unsophisticated to false ideas and wrong conceptions as to the causes of disease and the

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underlying pathological processes, and the end results that may reasonably be expected following a serious disease, traumatic injury or a minor or major surgical procedure.

The layman is graduated by the School of "Shyster Attorneys" and ambulance chasers and apostles of various cults, so that he becomes an ardent disciple of vicious mistrust and is ever ready to be the tool for the commission of criminal felony fostered by the "Shyster Attorney," (not lawyer, the title "attorney" is as contemptible as is the title "doctor.") This is a day of damage suits involving railway corporations and industrial organizations. Public utilities and physicians, the custodians of life and health, come in for the greater part as the target of these damage suits. The physician is held to the strictest accountability for sins of omission and commission and even his purposes and motives are wilfully misinterpreted to meet successfully the felonious designs and purposes of the charlatan. If the physician's most delicate and difficult task is not performed to the entire satisfaction of the patient and his family but also to the entire neighborhood, he may very promptly be subject to a suit for malpractice. It is almost incredible that the men who above all others live a life of self-sacrifice, ministering to the sick and suffering of their respective communities, who freely give their services to the poor, day and night, rain or shine, sick or well, without money and without price, should be ever held under suspicion and the strictest surveillance, while for the least failure real or imaginary, they are liable to be set upon by the harpies of the law.

It is a well known fact that the charity patient or the man who never pays, nor expects to pay a bill for medical services, is the man who more frequently than any other seeks redress, if redress it be, at the hands of the law for unsuccessful treatment by the physician and surgeon. This is one of the many ways the "dead-beat" adopts to escape the payment of a medical bill; bringing suit he hopes to effect a compromise or to offset the physician's bill by a counter-claim. Therefore, we must be well guarded in the care and treatment of any patient irrespective of his financial or social condition.

Then there is another cause that prompts and encourages this spirit among laymen, and not infrequently leads to the institution of malpractice suits. It is an insult to the intelligence of the profession that jealousy between brother physicians should exist. This jealousy prompts some unfavorable comment upon the good or bad results in the practice of a brother practitioner. Gentlemen, this is wrong! And what is still worse, at times we hear of physicians encouraging these suits. **"Let my tongue cleave to the roof of my mouth, and my right hand forget her cunning in the hour when I shall appear as anybody's witness save the truths."** (Ref. John A. Lewis, Int. Clinics, Vol. III, 12th Series, 1902.) On the other hand criminal ignorance, neglect, unfaithfulness, in consequence of which the usefulness, happiness and comfort of a human being is destroyed, should not go unpunished.

Patients must be made to understand how serious, difficult, and delicate a matter it is to treat even a simple fracture or dislocation, or a case of typhoid fever or a case of pneumonia or other serious disease, and how much more difficult to treat a serious and complicated fracture, how hard it is to make out the exact anatomical relations and positions in a bruised, swollen and distorted limb, whether the injury is a dislocation or a fracture, or both; and how difficult to return accurately to its normal position and to maintain in position after the injury has been treated. Laymen ought to be made to understand that a surgeon and physician is mortal and like other men, fallible. The wonder is, when we contemplate the difficult surroundings, that failure does not occur oftener than it does.

Nevertheless, we are obliged to treat the sick, wounded and injured, and good results are hoped for and expected by the sick and injured regardless of the nature of the injury or disease. Physicians and surgeons must possess and exercise good judgment. Physicians and surgeons must possess and exercise a surgical conscience. Physicians must not be negligent in any particular. Physicians must be protected against malpractice suits by carrying a reasonable amount of liability insurance that will defend and protect against a possible verdict.



Surgical and medical judgment is a growth and comes by experience. It means more than the knowledge to make a rough diagnosis, or the technical skill to perform certain operations. It implies a certain experience which enables one to weigh up the advantages or disadvantages of an operation or line of treatment in a particular patient.

**Case in Point.** St. Louis, Mo.; \$3,500 verdict.

Physician placed drainage tube into pleural cavity; pinned tube to skin; tube was lost; plaintiff asked for X-ray examination. Physician said rubber would not show; operated and failed to find tube. Plaintiff insisted on X-ray and located tube. Removed. Boy 13 years old; died. Physician found guilty of negligence; want of skill in placing and fixing tube, leaving tube too long in cavity. Whether these acts were the proximate cause of death was for the jury to determine. (Medical Record, March 24, 1917, page 501.)

The juror said: "The plaintiff is my friend and neighbor and I knew the doctor was insured and I knew the woman needed the money." Nevertheless protect yourself and family by carrying liability insurance of the right kind.

The knowledge of the risks and complications besetting any operation, nay more, the ability to foretell the benefits that may accrue, and the evils (if any), that may follow—such wisdom is not to be acquired from books alone, but rather from a certain matured experience, combined with much study and careful deliberation on individual cases.

When a surgeon suggests an operation, there is always a string of questions to be answered by him. "Is the operation dangerous?" "Will you guarantee a cure?" "Is there no other way I could try first?" These questions are not to be answered in an offhand manner. The unexpected is always happening, and we shall be wise to deliberate carefully and not be led to make statements which may be falsified or give rise to misunderstandings. A mother once said to the surgeon: "You do not tell me anything about my boy. Are there any doctors who will?" "Yes, there are lots of them ignorant enough to tell you all about it."

### The Development and Cultivation of a Surgical Conscience.

"It is a term hard to define. It manifests itself in the feeling of obligation and duty of the surgeon to his patient no matter who he is or what he is. A good surgical conscience must be based on justice, honesty and correct reasoning." (Ref. Wm. A. Brend, Practitioner, XCVII, 1916. Pages 323, 335.)

The question may be summarized as follows:

(1) Do not neglect patients; (2) never warrant a result; (3) let it be understood that failure is possible; (4) if in doubt call for a consultant; (5) if in spite of your best efforts to avoid a suit, one comes, never compromise or pay hush-money, but fight to the last ditch.

Every physician should always stand ready to go to the assistance of his brother physician, with his time and money if necessary, in defending one of these suits for malpractice. If all patients were honest, and if all physicians and surgeons possessed good judgment and always exercised the reasonable degree of care, skill and diligence, there would be few or no malpractice suits.

### What Is Malpractice?

Malpractice is the bad professional treatment of **disease, pregnancy, or bodily injury** from reprehensible ignorance or carelessness, or with criminal intent.

### Civil Liability.

A physician, surgeon, dentist or other medical practitioner offering his services to the public as such, impliedly contracts that he possesses and will use in the treatment of his patients, a reasonable degree of skill and learning, and that he will exercise reasonable care and exert his **BEST JUDGMENT** to bring about a good result. A failure to perform this contract renders him liable for injuries caused to the patient thereby.

### Degree of Care Required—In General.

The standard by which the degree of care, skill and diligence required of physicians and surgeons is to be determined is not the highest order of qualifications obtainable. **It is the care, skill and diligence which are ordinarily possessed by the average of the members of the profession in good standing in similar localities,**

regard also being had to the state of medical science at the time.

### **Physician Not An Insurer.**

Unless it is so provided by an expressed contract, the physician or surgeon does not warrant that he will effect a cure or that he will restore the patient to the same condition in which he was before the necessity for treatment arose, or that the result of the treatment will be successful.

### **Nature of Case Affecting Degree of Care.**

What is reasonable care, skill and diligence depends largely upon the circumstances of the particular case and upon the duty to be performed, the degree requisite being in proportion to the nature of the case.

### **Degree of Care in Rendering Gratuitous Services.**

The same degree of care and skill and the same measure of duty are owed by the practitioner to the patient whom he is treating gratuitously as to one from whom he receives compensation.

### **Duty to Make Proper Diagnosis.**

The liability of the practitioner is not limited to injuries arising from improper or negligent treatment, but he is also liable when he fails through a want of the requisite degree of care, skill and diligence to detect the nature of the patient's complaint.

### **Duty to Give Instructions.**

It is incumbent upon a physician to give such instructions as are proper and necessary to enable the patient or his nurses and attendants to act intelligently in the further treatment of the case, and a failure to do so is negligence which will render him liable for injury resulting therefrom.

### **Consequence of Injury.**

The physician or surgeon is chargeable with knowledge of the probable consequences of an injury, or of neglect or unskillfulness in treatment. He is bound also to know the natural and probable results of the remedy which he employs.

### **Condition of Patient As Affecting Liability.**

The patient's condition at the time the physician takes charge of the case does not prevent a recovery of damages caused by the latter's malpractice, even though such condition may be a contributing cause of the injury which results to the patient. In assessing damages the effects of the malpractice and those of independent causes must be distinguished.

### **Errors of Judgment.**

A physician or surgeon or dentist possessing the requisite qualifications and applying his skill and judgment with ordinary care and diligence to the diagnosis and treatment of a patient, is not liable for an honest mistake or error of judgment in making a diagnosis or prescribing the mode of treatment, where there is reasonable doubt as to the practice to be pursued. But one who is not possessed of the requisite qualifications cannot claim to be exempted from liability on the ground that his mistake was caused by an error of judgment.

### **Damages.**

Who may recover? It has been seen above that the practitioner is liable to the one injured by reason of his malpractice, but in the case of injuries to married women, infants and servants, the physician is exposed to an additional action by the husband, father or master for the loss of services.

### **Failure to Obey Instructions.**

It is the duty of the patient to conform to the reasonable and necessary instructions and treatment ordered by the physician or surgeon, and his failure which contributes to injury will bar recovery, even though his compliance is prevented by pain. If the condition of the patient is such that he cannot be made to understand the necessity of the treatment proposed, and the members of his family having him in charge refuse to allow the proposed treatment, then the physician or surgeon is not required to use force, and is relieved from liability for injuries ensuing from failure to apply the treatment. Consent to administer an anesthetic or perform a minor or major surgical operation must always be had from the patient or from his legal and authorized representative except in case of unusual emergencies.

**Stolock vs. Holm et al.**

Said Jaggard: "The negligence of a surgeon in determining to perform a primary operation during a condition of shock is to be determined by reference to pertinent facts then in existence, which were known or might have been known in the exercise of due care, and not by reference to knowledge acquired after the operation has been performed. To the ordinary rule that the exercise of defendant's best judgment is no defense in an action for damages caused by his negligence, a general exception is recognized **with respect to cases involving matters of opinion and judgment only.** A physician entitled to practice his profession, possessing the requisite qualifications and applying his skill and judgment with due care, is not ordinarily liable for damages consequent upon an honest mistake or an error of judgment in making a diagnosis, in prescribing treatment, or in determining upon an operation where there is reasonable doubt as to the nature of the physical conditions involved, or as to what should have been done in accordance with recognized authority and good current practice."

"The exception in malpractice applies to the formation of the judgment by such physician. It may not extend to the previous acquisition of data essential to a proper conclusion or to consequent conduct in the subsequent selection and use of instrumentalities with which he may execute that judgment. The reasons for this exception are to be found in the character of the emergencies physicians meet, which often preclude deliberation; in the nature of their undertaking, which contracts for individual judgment and skill; in the peculiarity of the human constitution, which presents difficulties not arising from insensate matter; in the nature of medical science, which is based on progressive knowledge; and in the inherent uncertainty of expert testimony involved, which itself is the expression of opinion often in such cases founded on doubtful observation."

"Here a physician amputated a crushed, bruised and torn leg, the tibia of which had suffered an oblique compound, comminuted fracture. The operation was performed shortly after the injury had been caused by the teeth of a revolving cylinder of a threshing separator

into which the patient had fallen. The tibia was sawed in two places. Death ensued. It is held that, upon the testimony as to the condition of the patient and the evidence of experts, the physician was entitled to a directed verdict."

"The fact that a patient dies immediately after an operation is not of itself evidence of negligence on the part of the operating surgeon. Negligence in this case must be determined by reference to pertinent facts then in existence, of which he knew or should have known in the exercise of due care when the operation was performed. The principles of law in this and similar cases are clear and well settled."

"In an ordinary action for negligence, that a man has acted according to his best judgment is no defense. The standard of careful conduct is not the opinion of the individual, but is the conduct of an ordinarily prudent man under the circumstances."

Said Judge Tindall: "To hold otherwise would leave so vague a line as to afford no rule at all; the degree of judgment belonging to each individual being infinitely various."

"With respect to matters resting upon pure theory, judgment, and opinion, however, there is a generally recognized variation from this sound principle. The distinction between an error of judgment and negligence is not easily determined. It would seem, however, that if one assuming a responsibility as an expert, possesses a knowledge of the facts and circumstances connected with the duty he is about to perform and brings to bear all his professed experience and skill, weighs those facts and circumstances, and decides upon an action which he faithfully attempts to carry out; then, **want of success, if due to such course of action, would be due to error of judgment and not to negligence.** But if he omits to inform himself as to the facts and circumstances, or does not possess the knowledge, experience, or skill which he professes, then a failure, if caused thereby, would be negligence. Cases of malpractice may be within the exception. **He is not liable for a mere error of judgment provided he does what he thinks is best after a careful examination. He does not guarantee a good result but he promises by implication to**

use the skill and learning of the average physician to exercise reasonable care, and to exert his best judgment in an effort to bring about a good result. In some matters medicine is a science; in others it is an art. Generally the exception governs cases in which it is a science; the rule, cases in which it is an art."

"If, for example, a physician certifies that a man is insane, without having made an examination, his negligence is of fact and not of science. When the physician is actually operating he is employing surgery as an art, and if, for example, he uses an old rusty saw, or if he operates on the wrong arm, or sews up a sponge in the abdomen he has opened, his wrong concerns physical facts, and has fairly been held to be governed by ordinary principles of negligence."

"Where, however, due care, diligence and skill have been employed in ascertaining the essential preliminary information for an opinion whether a surgical operation should be performed or not, the formation of the judgment in accordance with appropriate scientific knowledge, in a case of reasonable doubt is within the exception."

"One reasonable justification for this exception in many cases is the elementary principle that when a man acts according to his best judgment in an emergency but fails to act judiciously, he is not chargeable with negligence. The act of omission if faulty may be called a mistake, but not carelessness. Physicians in the nature of things are sought for and must act in emergencies, and if a surgeon waits too long before undertaking a necessary amputation, he must be held to have known the probable consequences of such delay, and may be held liable for the resulting damage. Another justification for the exception lies in the nature of the undertaking. Most professional men are retained or employed in order that they may give the benefit of their peculiar and individual judgment and skill."

"A lawyer, for example, does not contract to win a lawsuit, but to give his best opinion and ability. He has never been held to liability in damages for a failure to determine disputed questions of law in accordance with their final decision by courts of appeal. It would be just as unreasonable to hold a physician responsible

for an honest error of judgment on so uncertain problems as are presented in surgery and medicine. Indeed, the peculiarities of subject matter with which medical men deal constitute another abundant justification for the exception. Those peculiarities concern, in the first place, the constitution of the human mind and body, and, in the second place, the nature of his science itself. On the human subject matter with which physicians have to do the words of Judge Woodward have become classical: "The surgeon does not deal with inanimate or insensate matter like the stonemason or bricklayer, who can choose his materials and adjust them according to mathematical lines, but he has a suffering human being to treat, a nervous system to tranquilize and an excited will to regulate and control."

"Where a surgeon undertakes to treat a fractured limb, he has not only to apply the known facts and theoretical knowledge of his science and art, but he may have to contend with very many hidden and powerful influences, such as want of vital force, habit of life, hereditary disease and the state of the climate. These, or the mental state of the patient may often render the management of a surgical case difficult, doubtful and dangerous and may have greater influence in the result than all the surgeon may be able to accomplish even with the best skill, diligence and care."

"Physicians and surgeons deal with progressive inductive science. On two historic occasions the greatest surgeons in our country met in conference to decide whether or not they should operate upon the person of a President of the United States. Their conclusion was the final human judgment. They were not responsible in law either human or divine for the ultimate decree of nature. The same tragedy is enacted in a less conspicuous way every day in every part of the country. The same principles of justice must apply. A physician is not a warrantor of cures. If the maxim '*res ipsa loquitur*' were applicable and a failure to cure was held to be evidence, however slight, of negligence on the part of the physician or surgeon causing the bad result, few would be courageous enough to practice the healing art; for they would have to assume financial liability for nearly all the ills that human flesh is heir to.



**God forbid that the law should apply a rule so rigorous and unjust as that to the relations and responsibilities arising out of this noble and humane profession."**

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#### CESAREAN SECTION.\*

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The material for this paper is taken from our experience at St. John's Hospital in Red Wing, and consists of nine cases upon whom the operation for Cæsarian section has been performed by my associates and myself. It is not the object of the writer to contribute anything particularly new in regard to the operation, but rather by the relating of our experiences to bring the subject to the attention of the Society with the hope that it will stimulate interest in it, and at the same time cause it to be more generally used in certain complicated obstetrical cases, where, judging from our experience, it will afford improved relief to these difficult conditions and at the same time be a source of much satisfaction to the accoucheur.

The indications for operation, with brief histories of cases, follow:

*No. 1.* Primipara; aged 30. Dwarf with rickets, further complicated by ankylosed hip. All pelvic diameters irregular and below normal as given in the standard text books. She was allowed to go to term and at the beginning of labor was delivered of a seven-pound baby. There was absolutely no chance of delivery through the pelvis without a mutilating operation. She left the hospital in two weeks with a live baby.

*No. 2.* Multipara; aged 32. This patient came with the request for the operation with the history of having had three high forcep de-

liveries and three dead babies. The forceps operations were necessary on account of uterine inertia and the fact that in each instance the babies were extra large. These forcep operations were performed before the days of pituitrin and might possibly have been avoided had it been used, as the pelvic measurements were normal. She was given the operation which resulted in a much less stormy convalescence than any of her forcep operations and, in addition, was able to take a live baby home with her.

*No. 3.* Primipara; aged 29. This patient had a narrow contracted vagina due to scar tissue from a large pelvic abscess. The scars were thick and would not bear stretching. She came after being in labor 12 hours. The pelvic measurements were normal and there was a complete dilatation of the cervix. The head simply could not pass through the scarred vagina. She was given the Cæsarian operation rather than forceps operation, which would have resulted in an almost irreparable perineum.

*No. 4.* Multipara; aged 38. Patient came with history of two forcep operations resulting in two dead babies and one cephalotomy. On all three occasions she had been in labor from 24 to 48 hours before being delivered. The babies were exceptionally large in each instance, which was the only explanation offered for the failure to deliver normally. The operation gave her a live baby with a convalescence much easier than any of her forcep operations.

*No. 5.* Primipara; aged 31. Patient came to hospital two weeks before term with the history of repeated hemorrhages for the preceding three weeks. Examination showed a placenta praevia partialis, about three-fourths of the surface of internal os being covered. She was kept quiet for four days, when, with the beginning of slight labor pains, she began to have a severe hemorrhage. She was operated at once, and while there was more hemorrhage than in any of the other cases, it was controlled by packing a towel in the uterus and taking the sutures over it. She was given a live baby and went on to an uneventful recovery.

*No. 6.* Primipara; aged 36. Sister of No. 1, with rickets. Pelvic measurements below normal in all diameters. She was given the operation as soon as she began to have labor pains.

\*Read before the Annual Meeting of the Minnesota State Medical Association, St. Paul, October 11 and 12, 1917.



This case was complicated by a hemorrhage in the abdominal wound, which occurred a few days after operation and resulted in a ventral hernia in the scar six months afterward.

No. 7. Primipara; aged 42. Pelvic measurements normal—a large baby in O. L. A. position. After being in hard labor for 12 hours with good dilatation but no engagement, the patient, a trained nurse, requested the Cesarean rather than a high forceps operation. This was typical of the case Murphy describes as a positive indication for Cesarean section—a primipara over 40 with a large baby—his argument being that there is a tearing rather than a stretching of the tissues and that a high forceps delivery under these conditions will invalide a woman for the remainder of her life.

No. 8. Primipara; aged 26. Pelvic measurements slightly below normal. Because the baby was small, patient was allowed to have labor pains for 10 hours. The pains were very severe for the last three hours. The position was O. L. A. with no engagement. On account of certain injury to the child's head with a forceps operation, she was given the section.

No. 9. Multipara; aged 34. This patient had given birth to five children. All labors had been long and difficult on account of uterine inertia, further complicated in three instances by breech presentation with forceps to the after-coming head. The convalescence of the mother was long and trying after each case. She came to the hospital with the expectation of having the section rather than another forceps operation. She was left in labor with a breech presentation for six hours, when she was delivered of a large baby and went on to a normal convalescence.

The following technique is employed: Patient is given a bath, an enema, and is catheterized. Instead of using iodine, the abdomen, vulva and thighs are shaved and scrubbed. One-fourth c. c. of pituitrin is given at the time the anaesthetic is started and the remainder of the c. c. just as the abdominal incision is made. We use three assistants. The incision is made slightly to the left of the umbilicus, which is used for a center, and is extended four inches above and below this point. On account of the extreme stretching of the abdominal muscles, the skin is very carefully

incised, care being taken not to include the uterus in the incision. After the peritoneum is separated, it is best to enlarge the opening with the scissors, using the finger as a guide. The operator now delivers the uterus through the abdominal wound, and one assistant grasps tubes and broad ligaments with both hands. Warm saline towels are now quickly packed about the uterus by the second assistant, these preventing as much as possible the entrance of blood and amniotic fluid into the abdominal cavity.

The uterus is now carefully incised through the fundus. When the cavity has been entered, the scissors, with the finger for a guide, is again the best means of completing the incision on account of the danger of injuring the child. One lower limb is now grasped by the operator and delivery made. An assistant doubly clamps and cuts the cord, and the child passed to a waiting nurse, who has all preparations made to resuscitate if necessary. The operator now delivers the placenta, thoroughly dilates the cervix, and wipes the interior of the uterus with a towel to be sure all membranes are removed. If the hemorrhage is severe, hot packs are used. This we found necessary in three of our cases. The uterine wound is closed as follows: a continuous 20-day chromic catgut, including a small bite of muscle down to, but not through the endometrium. The second row is continuous of stout linen, and includes the remaining muscle tissue which has now become quite thickened on account of the uterine contractions. This row extends to the peritoneal covering. The third row of 10-day catgut is again continuous and approximates the peritoneal covering. Any blood clots that may have entered the abdominal cavity are removed with the saline packs, the uterus returned to the abdomen, one assistant continuing the massage. The abdominal wound is now closed in the usual manner.

The question of ligating the tubes for the purpose of preventing future pregnancies came up in several of our cases. Four of these were ligated, Nos. 1 and 6, sisters, both with rickets; No. 4, 38 years of age, whom we did not deem physically fit to go through another pregnancy; and No. 8, who showed a tuberculous tendency. Some of the others asked for the ligation, but

when they were given to understand that it was possible to undergo the operation a second time and that there was always a possibility of giving birth normally, providing the baby is not too large, they were satisfied.

The time required for the operations varied from 15 to 30 minutes and was dependent mainly upon whether or not the tubes were ligated, and on the difficulty of controlling hemorrhage. This latter has been much easier since we have been using pituitrin as a hemostatic rather than ergot, which was used in some of our earlier cases.

We have had no maternal mortality in our series and no infant mortality except one, which occurred one week after delivery from causes in no way incident to the operation. These uniformly good results can be ascribed in a large measure to the fact of having the patients in the hospital and directly under control. Unnecessary or questionable examinations were not made, and the patients were operated before they had become physically exhausted from long labor pains. It is easy to see how the 3 per cent mortality which DeLee gives for the section can be brought about by delay in giving the patient the operation until her strength is exhausted, and by infection due to repeated examinations after the sac has been ruptured. It would seem that the 3 per cent mortality should be charged to the delay in coming to operation rather than to the operation itself.

It appears to us after our experience with the operation, that it is advisable to use it in many more cases than it is used in at present. One cannot help being convinced of this by watching a convalescence from a high forceps and a Caesarian operation. If there remains any doubt, it can be easily and quickly dispelled by interviewing the patient who has undergone both operations.

#### DISCUSSION.

DR. H. B. SWEETSER, Minneapolis: My experience with Cesarean section has been limited. I had hoped the author of the paper would take up the various indications other than the mechanical difficulties of labor. Placenta previa and eclampsia have entered into our cases very largely. Given a primipara with an undilated os, with convulsions, Cesarean section seems to be a life-saving measure.

There has been a good deal of discussion as to whether Cesarean section is justifiable for these cases or not, but in the cases we have had I feel sure a few of them have recovered, who would probably have succumbed under other treatment. Only about a month ago I was asked to see such a case. The woman had a blood pressure that was low she had had two convulsions, and when I saw her she seemed to be in a very fair condition, so that I did not advise Cesarean section at that time. She was delivered in the afternoon of a small child without any trauma; still she died. Another case recovered very well following the Cesarean section, but in a week became maniacal. This condition lasted for a few days, and then she recovered and has been well since.

I have seen several cases of placenta previa where I was very sorry we did not resort to Cesarean section. If the pelvic measurements are such that the child cannot go through the natural passages, then, of course, Cesarean section is indicated, and in these days, with such a low mortality, it is very much to be preferred to any mutilating operation, in that the mother almost invariably recovers with a living child.

In the cases that are reported today (nine cases) the indications did not seem to be very well marked for so serious an operation because it seems to be the consensus of opinion that once a Cesarean section, always a Cesarean section. The woman who has had a child delivered in this way, according to the statistics, submits to it again.

Then, there are certain complications which occur and which we must bear in mind. There is always more or less danger in the second pregnancy of a rupture of the uterus. Another complication sometimes occurs in these cases, which is avoidable frequently, namely, a traumatic hernia. The woman who has a traumatic hernia following a Cesarean section suffers a serious inconvenience, and is frequently an invalid.

Concerning the method of operation, there are several. One of which is to make a large incision so that the uterus may be delivered outside; and another in making a small incision, where the uterus is pushed against it, and the uterus not delivered out onto the abdomen, the child being delivered, and the uterus put back. This latter, it seems to me, is the far preferable method because the incision is smaller, and if the operation is done at the time of election there is no danger of infection even if some of the fluid from the uterine cavity goes into the peritoneal cavity. If you select your time in all these cases, when no vaginal examinations have been made, and the contents of the uterus are not infected, the mortality rate will be very low and the chances of having a large, weak scar lessened.

DR. R. E. FARR, Minneapolis: The Association is very fortunate in having as a visitor today, Dr. Culbertson, of Chicago, one of the teachers in Rush Medical College, and who is also one of the editors of *Surgery, Gynecology and Obstetrics*. I would ask

that the privileges of the floor be given Dr. Culbertson to discuss this paper.

DR. CAREY CULBERTSON, Chicago: The subject of Cesarean section is one of great interest to me. I always try to fortify whatever statements I may make in reference to this subject with accurate data, but I have not such data in my possession at this time.

I dare say, every man here who has been in practice for ten years or more has been educated in regard to the question of Cesarean section by the old Vienna school of teaching, that there was only one indication for Cesarean section and that is, the absolutely contracted pelvis. As recently as 1903, at which time I was in Vienna, Cesarean section was being done for six and a half centimeters of conjugata vera. Other physicians were treating conditions with less contraction than that by all of the other things that have been mentioned—version and extraction, high forceps, premature induction of labor, etc. Cesarean sections were usually done well, and all other things were usually done indifferently well or badly.

It has remained for the American obstetrician to emphasize the value of Cesarean section for the relative indication, as it is called in the text books. By the relative indications we mean, of course, all of the other things for which we are now doing Cesarean section, instead of the absolutely contracted pelvis.

In the last fifteen years in the clinic with which I have been associated in Chicago, of which Dr. J. Clarence Webster is the chief, we have done many Cesarean sections, and Dr. Webster is one of the men who has helped to put it down as one of the best methods of meeting these relative indications in obstetrics. If you take our results, there can be no question as to the advantage and facilities of Cesarean section in a good hospital over the other methods. I do not mean to say that every man who is engaged in general practice should resort to Cesarean section and have it take the place of some other methods of treatment, because statistics do show, for instance, that version and extraction is just as good a measure for treating placenta previa as Cesarean section; but in the practical application of our work, when we see a woman come in with an acute anemia from placenta previa, and then see her develop an infection after a version and an extraction for instance, and then we see another case who is sectioned as soon as she begins to bleed, and see the difference in the recoveries, the difference in the fetal mortality, the difference in the subsequent morbidity, there is no question at all as to the advantage of Cesarean section in a number of these cases. In a series of cases the difference is certainly in favor of Cesarean section. The same thing holds true in regard to the toxemia of eclampsia, etc., so that I was greatly pleased indeed to find that the essayist this afternoon advocated and demonstrated by his own case records the value of Cesarean section for the relative indication.

In the fifteen years I speak of we have had—I do not know how many, but very nearly 200 Cesarean sections in our clinic. Dr. Webster himself has done over 100 Cesarean sections without the loss of mother or child. I regret to say that the results of his associates, his assistants, have not been quite so brilliant, because we have lost two mothers, one from pulmonary embolism on the eighth day after Cesarean section, and another from toxemia. Autopsy was not permitted, but possibly it was an intoxication from the anesthetic, because in that particular case we had run out of novocain and had to use a substitute.

As regards the method of procedure, I would differ from the doctor in this particular: we do not find it necessary to put linen in the wall of the uterus; we sew up the uterine wall in two stages with catgut. We have seen but one rupture of the uterus where a previous Cesarean section had been done, and that was a spontaneous rupture at the onset of labor, probably because the patient came in with the rupture. At the onset of labor the patient was extremely toxic from a pyelonephritis on one side; all of her tissues were marked by cloudy swelling and softening of the uterus itself which might have explained the rupture of the uterus, because the rupture in this case was not only in the line of the old scar but also beyond. We do not deliver the uterus through the abdomen, we leave it in, as we see no advantage from doing that. The material does not escape. We do a Cesarean section exactly the same as we do a pelvic operation; that is to say, we use very large, continuous flap sponging and pack the entire field off before we approach the uterus, and just as soon as we operate upon a septic pelvis we pack the bleeding space. We put a very large pad around the uterus; we control hemorrhage in that way with plenty of assistance; you have to have one assistant to do that. As a matter of fact, the longitudinal median incision which we have used, and a median incision in the uterus, is a relatively bloodless one so far as the uterus itself is concerned.

I would like to mention one other thing in our technic, and that is the use of pituitrin. As soon as we have the uterus exposed and packed off, we inject pituitrin into each side of it, directly into the uterine wall, then make our incisions between. We have used as many as 2 c. c., one on each side. Sometimes we do not use quite that much. Another very important thing is that we never open the uterus when it is flaccid; the uterus must be contracted. We either contract it by massage, or wait for a contraction if the patient is in labor, and incise the uterus in its contraction, and the result is we have the baby delivered into our hands. As soon as the uterus is split it contracts, and sometimes the entire sac bulges out, and all you have to do is to split with your scissors and the baby is in your hands. Before the cord is tied off, the placenta is delivered spontaneously in the uterus. I have seen that in my own experience time and again. That is an extremely valuable point in technic we think.

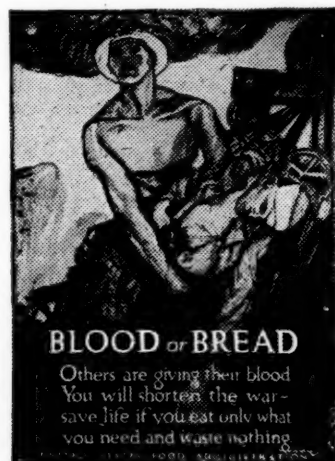
Another thing we do that makes Cesarean section safer is the method of anesthesia. We work nearly altogether now with novocain, giving the patient also nitrous oxid. In our clinic, as some of you know, we use nitrous oxid for normal labor and continue to do so after something over two years' experience. We start the nitrous oxid before we begin the administration of novocain, so that the patient does not have the distress of the infiltration. The infiltration is done abundantly, injecting not only the skin but the subcutaneous tissue and fascia as well, and finally putting the pituitrin into the uterine wall. It is unnecessary to inject novocain in the uterine wall. By that means it is possible to operate very rapidly.

There is one point which was brought out by the doctor which was not emphasized sufficiently. He spoke of the importance of estimating the size of the baby and the baby's head, and I think it is just as important to do this as it is to estimate the size of the pelvis. Many men will tell you that you cannot do that; there are other men who will tell you that you can. One man will tell you that he can estimate the size of the baby's head to a fraction of a centimeter, and that you can estimate the baby's weight to an ounce or a pound, which is all right. I do not deny that he can, because he was my old teacher; it does not make any difference whether you can estimate it or not. We only estimate the size of the pelvis; we can estimate it accurately enough for all practical purposes and so you can the baby's head. Not only a moderate or considerable contraction of the pelvis is important, but the size of the baby is important. Take a woman who has gone over term, and nobody knows when that woman

is at term, and the baby has developed to an excessively large baby with a large head. It is as important there to know that baby is a large baby as it is to know that the mother has a contracted pelvis. The relation of the one to the other is an important thing. I have seen a woman with a pelvis in which the conjugata diagonalis was only 7 centimeters, and yet she spontaneously expressed the baby. The fact that she can deliver herself of a child is not a test. The important thing is that you recognize the disproportion between the two, no matter what it may be.

Just one other point. High forceps is the most serious obstetrical operation there is, not only in its influence upon the child, for its mortality is very high, but for its influence on the mother because it is followed by morbidity. You cannot put on high forceps where the head is in the inlet, and pull the baby's head through the inlet by main force, without damaging the mother. That point has been emphasized by able men over and over again, and there is no question about it. The statistics of Williams have shown that the sooner Cesarean section is done after labor begins, the less morbidity follows; but the mere fact that the membranes have not ruptured should not contraindicate Cesarean section. Theoretically, the uterus should not be infected because it is protected by the sac. We do Cesarean section right along without the membranes being ruptured.

I am pleased that Dr. McGuigan has presented to you these case reports, demonstrating that the time has come—and it must be impressed upon all of you—when we in America are doing Cesarean sections for the relative indications and we are getting away with it. It seems to me that answers the whole argument.





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## EDITORIAL

### RECENT WORK ON THE TREPONEMA PALLIDUM.

Syphilographers have practically agreed that salvarsan will kill all of the treponemata with which it comes in contact. Nevertheless, the vast majority of cases of syphilis are not cured by its use—a fact which gives rise to speculation, and should be a powerful incentive to further scientific research. Several explanations have been brought forth to explain the frequent lack of cure: first, that the organisms may be encapsulated and consequently are unaffected by the drug; second, that the organ-

isms may acquire a tolerance against the remedy; and third, that the organisms may possess a life cycle, certain forms of which are not affected by salvarsan.

H. H. Hazen in *Medicine and Surgery*, Vol. I, No. 8, has reviewed the literature of recent date with the purpose of ascertaining facts determined by experimental research that might throw light upon these important questions. Several valuable points brought out in this review provide food for thought.

McDonagh, working upon the life cycle of the organism, contends that the spore which appears either circular or renal-shaped, motile and measuring 1.5 microns in diameter, is the elemental form, the starting point of the sexual cycle. There is, however, an asexual cycle in which the spore divides and forms a cyst, the parent cell being killed.

A fact which militates against this belief of McDonagh's, is that the treponema can be cultivated through hundreds of generations and inoculated into animals and no other form can be obtained. Nevertheless, clinical observation might give credence to McDonagh's work. Another point that would appear to invalidate spore formation is that infected material is rendered sterile by heating for three minutes at a temperature of 55° C.

Reasoner has shown that the organism may live 56 hours at room temperature in an infected testicle and presumably in other tissues.

Akatsu and Noguchi in order to determine what effect salvarsan and mercury might have upon the treponema pallidum incorporated these drugs in culture media used in the cultivation of the organism. They found that the treponema pallidum might increase its tolerance to both salvarsan and neosalvarsan five and one-half times the original mark, and bichloride of mercury thirty-five to seventy times the original. The organism also became more resistant to iodine. We may assume then, that syphilitic patients may acquire a far greater tolerance for mercury than for either salvarsan or neosalvarsan.

Akatsu has shown by bacteriological experiments in vitro that the treponema pallidum is killed by certain drugs in the following dilutions: phenol, 1:2,5000; bichloride of mercury, 1:100,000; salvarsan, 1:7,500; neosalvarsan, 1:2,5000; potassium iodide, 1:10.

The selective action of the treponema pallidum on certain types of tissue, e. g., central nervous system, aorta, etc., led Reasoner to believe that there are different strains of the organism having specific affinity for various tissues of the host. Through experimental evidence he believes his contention to be a correct one. Clinical experience tends to substantiate his claim.

## WAR AND MINNESOTA'S TUBERCULOUS.

The war measure, second to none in its importance, directed against the great white plague has been conceived, and is now operating for the relief of returned soldiers suffering from tuberculosis.

By means of an arrangement combining the resources of the American Red Cross, the Advisory Commission of the Minnesota Sanatorium for Consumptives, and the Minnesota Public Health Association, proper care and treatment will be supplied every Minnesota soldier suffering from tuberculosis.

This co-operative effort will prohibit a repetition in Minnesota of the misfortunes experienced in other states by soldiers who have in some instances been left to die in poor-houses or alm-houses for lack of proper provisions for their care.

There are the brightest prospects that exceedingly valuable services will be rendered under the provisions of the following contract:

Memorandum of Agreement between the Northern Division of the American Red Cross, the Advisory Commission of the State Sanatorium for Consumptives, and the Minnesota Public Health Association.

As a preface to this agreement it is understood that the several agencies shall co-operate in securing adequate care and treatment for the tuberculous soldier, whether he may have been discharged in (1) "line of duty," (2) "not in line of duty," or (3) rejected by local examining boards.

In carrying out the program, the following points will be observed by all parties hereto:

Sec. 1. That, immediately upon notification of a tuberculous soldier, the Northern Division of the American Red Cross, through its Home Service Section of the local chapter, shall make contact with such soldier and ascertain essential facts concerning him, including the following facts desired by the

Minnesota Public Health Association and the Advisory Commission:

(a) Exact location of the individual, including his nearest railway station. (b) The apparent physical condition of the individual, whether in apparent normal health, debilitated or actually sick. (c) The financial condition of the individual, or his ability to meet all or part of the cost of care, approximating from \$10.00 to \$25.00 per week. (d) The educational standards of the individual and his family, rated as excellent, good, fair or poor. (e) The home conditions of the individual, rated as excellent, good, fair or poor. (f) The name of the family physician, and his willingness to co-operate in this program, indicated by "yes" or "no," or "doubtful." (g) The desire of the individual and his family for expert diagnosis and treatment, indicated as "willing," "uninterested," "opposed." (h) And any other information mutually agreed upon as desirable.

Sec. 2. The reports referred to above shall be made directly to the Minnesota Public Health Association through the office of the Northern Division of the American Red Cross, except as otherwise specified; and the Director of the Northern Division shall do all in his power to encourage prompt and thorough work on the part of the local committees in charge of this work.

(a) Furthermore, the Minnesota Public Health Association and the Advisory Commission shall make no effort to establish contact with tuberculous soldiers until after such contact is made by the local chapters of the American Red Cross, except that, in case no notice and information be furnished to the Minnesota Public Health Association within two weeks, said agencies may establish contact, at the same time notifying the Director of the Northern Division of the American Red Cross.

(b) Furthermore, provided local health departments express a willingness to make the initial contact and report on the case as required under Section 1, the Home Service of the Red Cross shall not make initial contact or visit cases except on request of the local department. This will apply to the following: Duluth, Minneapolis, St. Paul.

Sec. 3. That the Minnesota Public Health Association shall furnish to the Northern Division of the American Red Cross, at once, a complete record of all tuberculous soldiers with whom contact has been made or whose return has been reported to the Association, including all information relative to such soldiers now in the possession of the Association.

Sec. 4. That upon notice from the Northern Division of the American Red Cross the Minnesota Public Health Association and the Advisory Commission will proceed to bring about, in the shortest time practicable, the examination and diagnosis of all returned tuberculous soldiers, and the outlining of proper methods of treatment, and will report such diagnosis and outlines of treatment to the Northern Division of the American Red Cross.

Sec. 5. That the Minnesota Public Health Association and the Advisory Commission, for the pur-

pose of the examination, shall enlist the services of experts in the diagnosis of tuberculosis, and the services of competent nurses as required, and that the examinations will be held either at the home of the soldier or the central points convenient to the various soldiers.

(a) Services of medical experts for the diagnosis, instruction and public lectures will be supplied by the Advisory Commission. A uniform system of blanks or cards for all reports, dispensary and all other records will be supplied by the Advisory Commission.

(b) All public health nursing service required will be furnished by the Minnesota Public Health Association.

Literature, exhibits, press stories and all educational material required shall be furnished or approved by the Minnesota Public Health Association.

Sec. 6. It is understood that, in order to avoid delay, when transportation to a central examining point is necessary, the cost of such shall be borne by the Home Service Section of the local Red Cross chapters, provided the individual is unable to pay it.

Sec. 7. It is further understood that when the field workers of the Minnesota Public Health Association or the Advisory Commission, or other representative, enter a community to carry on the purpose of this agreement, they will act in co-operation with the Home Service Section and the local health officer, so that the Home Service Section will be in touch with the service rendered to the soldier at all times, and so that the local health officer may conserve the interests of the civil population.

Sec. 8. The results of all examinations shall be reported to the State Board of Health so far as they may affect the control and prevention of communicable diseases.

Sec. 9. That, in the interim between the reporting of a tuberculous soldier and his examination, and the outlining of his more permanent care, Home Service Sections of the American Red Cross shall render the soldier such care as he may require, with the understanding that examinations will be carried out as expeditiously as circumstances will permit.

Sec. 10. That under no circumstances will the American Red Cross countenance the housing of a tuberculous soldier in a county almshouse either temporarily or permanently.

Sec. 11. That the local chapters of the American Red Cross shall agree to assume expense of sanatorium or other care, as outlined or recommended by the Minnesota Public Health Association and the Ad-

visory Commission provided the funds cannot be secured from public agencies for the treatment of tuberculosis.

Sec. 12. That the records of the Minnesota Public Health Association and the Advisory Commission and the records of the American Red Cross, so far as they apply to the tuberculous soldiers in Minnesota, shall at all times be open to representatives of any party to this agreement for the purpose of carrying out the provisions of this agreement.

Sec. 13. That the Minnesota Public Health Association and the Advisory Commission will require of institutions, physicians, or other agencies to whom the care of tuberculous soldiers is entrusted, complete reports of progress, and abstracts of copies of these reports will be sent at frequent intervals to the office of the Northern Division of the American Red Cross.

Sec. 14. Nothing in this agreement shall be construed to affect the jurisdiction of the State Board of Health or local health authorities in cases of tuberculosis which fall within the rules and regulations for the control and suppression of tuberculosis.

This paper does not bind the National organization of the Red Cross, or its Division Office, to any payment from either treasury for the purpose indicated. It does mean, however, that the Division Office, through its Civilian Relief Bureau, shall use every possible influence to cause the Home Service Sections of local chapters to provide funds as indicated. The Division Office shall present to the various chapters in the division that the care of discharged tuberculous soldiers, in accordance with the plan outlined here, is a war obligation as well as an opportunity resting upon them because of their assumption of Home Service Work.

#### THE AMERICAN RED CROSS,

Northern Division,

F. T. Heffelfinger,

Manager.

(Signed) F. J. BRUNO,

Director, Civilian Relief.

#### ADVISORY COMMISSION OF THE STATE SANATORIUM FOR CONSUMPTIVES,

(Signed) ROBINSON BOSWORTH,

Executive Secretary.

#### MINNESOTA PUBLIC HEALTH ASSOCIATION,

(Signed) I. J. MURPHY,

Executive Secretary.

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HINCKLEY—Carleton Gale Kelsey. POKEGAMA—Robert Glenn Allison.

#### Pipestone County

JASPER—Albert Marinus Larson. PIPESTONE—Francis Lawrence Powers; George Fred Schmidt.

**Polk County**

CLIMAX—Thomas Arneson. GULLY—Axel Wilhelm Swedenburg.

**Pope County**

GLENWOOD—Michael Ambrose Desmond; James Ralph Elsey; Iver Ferdinand Selleseth. LOWRY—Luther Lewellyn Gibbon; Howard Lee Sargeant. STARBUCK—Charles R. Christenson. VILLARD—Richard Bates Girvin.

**Ramsey County**

NORTH ST. PAUL—Ernest William Cown. ST. PAUL—John S. Abbott; Moses Barron; Walter Douglas Brodie; Frank Earl Burch; Floyd William Burns; Andrew Christiansen; Sol George Cohan; Paul Burns Cook; Wallace Cole; Albert D. Cornica; Bronson Crothers; Karl Dedolph; Warren Arthur Dennis; Carl Bigelow Drake; James Nicholas Dunn; Edward John Engberg; James C. Ferguson; Everett K. Geer; Charles Harry Ghent; Joseph Marie Arthur Gravelle; A. R. Hall; Walter Henry Halloran; J. Felton Hammond; John Comstock Harding; Charles King Holmes; Joseph William Jesion; Elmer Mendelssohn Jones; Frank Norris Knapp; Albert M. Larson; John Nickolas Libert; Elmer Harry Lutz; R. D. McHugh; Jos. Louis Martineau; Edward August Meyerding; Joseph Clement Michael; Nels. George Mortensen.

Justus Ohage, Jr.; William Patrick O'Malley; John Jay Platt; Fred John Plondke; Louis Ramaley; William C. Rutherford; Francis Savage; Edward Schons; Olaf I. Sohlberg; John Clarence Staley; Kenneth Taylor; William Henry Von der Weyer; Jonas Samuel White; Frank White Whitmore; Clayton K. Williams; Otto Louis Winter; Harry Bernard Zimmermann; Johan Martin Arnsen; Bernard John Weigel.

**Red Lake County**

RED LAKE FALLS—John Clinton Wilkinson.

**Redwood County**

REDWOOD FALLS—Herman Oscar McPheeters; Hugo N. Sarchet. SANBORN—Monte Charles Piper.

**Renville County**

FAIRFAX—Arthur Murphy Crandall. HECTOR—Harry E. McKibben. RENVILLE—Ivan Rudolph Maercklein.

**Rice County**

FAIRBAULT—Charles W. Robilliard; Frank Storms Warren. NORTHFIELD—Fager M. Babcock; Joseph Moses, Jr.

**Rock County**

HILLS—Frederick Alonzo Engstrom.

**Scott County**

BELLEPLAINE—George W. Snyder. JORDAN—Lawrence Joseph Leonard; William Henry Phillips. SHAKOPEE—George Peter Dempsey.

**Sherburne County**

CLEAR LAKE—Harry Brooks Clark.

**St. Louis County**

AURORA—Robert Peroy Pearsall. BIWABIK—Paul Stevenson Epperson. CHISHOLM—Charles Hyatte Cherry. DULUTH—Chester Harland Clark; Joseph Henry Cosgrove; William Joakim Eklund; Frank J. Elias; Frank Augustus Grawn; A. T. Laird; Fredolph H. Magney; William Joseph McKillip; Fred

J. Patton; C. E. Prudden; Campbell Sansing; Simon Aloysius Walkowiak. EVELETH—Harvey Francis Rawlings; John Andrew Saari. GILBERT—Frederick Barrett. HIBBING—Hugh W. Reynolds; Albert F. Ryan. VIRGINIA—Holland Todd Ground. WEST DULUTH—Robert Sabin Forbes.

**Stearns County**

ALBANY—Delphin William Kohler. BELGRADE—Hugh Henry Slocumb. BROOTEN—Richard T. Glycer. KIMBALL—Frank P. Frisch; Richard O. Leavenworth. PAYNESVILLE—Harry William Arndt; Pierre Celestin Pilou. SAUK CENTER—Harold Ladd Lamb. ST. CLOUD—George Delos Rice; Phillip E. Stangi.

**Steele County**

BLOOMING PRAIRIE—William John Dalley; Albert Miller Treat.

**Stevens County**

HANCOCK—Mathias Lent Ransom. MORRIS—Edward Thomas Fitzgerald.

**Swift County**

BENSON—Lloyd Hermanus Van Slyke.

**Todd County**

BROWERVILLE—Verne S. Cabot.

**Traverse County**

BROWN VALLEY—Ronald Leitch Laney. TINTAH—Nathan Freeman Doleman. WHEATON—Bret Verne Bates.

**Wabasha County**

ELGIN—Walter Franklin Bleifuss. MAZEPPA—William Brown Heagerty. MINNEISKA—Cleon J. Gentzow. WABASHA—David Simon Fleischauer.

**Wadena County**

WADENA—Paul E. Kenyon.

**Waseca County**

WASECA—William Frederick Passer.

**Washington County**

STILLWATER—Eugene Benson Stebbins.

**Watsonwan County**

LEWISVILLE—Robert I. Barickman.

**Wilkin County**

BRECKENRIDGE—Ernest Wesley Rimer. CAMPBELL—William Edgar Wray.

**Winona County**

LEWISTON—Gilbert Hendrickson. WINONA—William Vardeman Lindsay; George Vincent Lynch; Bertolet Perry Rosenberry; Charles Pern Robbins; Samuel Schaefer.

**Wright County**

ANNANDALE—George Henry Norris. BUFFALO—John Jefferson Catlin. DELANO—Bert Victor Lares. MONTICELLO—Frank Everette Ellison.

**Yellow Medicine County**

GRANITE FALLS—Maurice Levy.

## MINNESOTA

County	Area, Square Miles	Sq. Miles per Physician	Population Est. 1917	Population per Phys.	Total No. Physicians	Total Wo- men Phys.	Physicians Under 45	Physicians Under 55	Members of Co. Society	Commis'd in M. R. C., etc.
Aitkin	1,830	305.0	13,019	2,169	6	..	4	4	5	1
Anoka	459	76.5	13,354	2,225	6	..	3	5	2	..
Becker	1,349	64.2	20,994	999	21	..	8	17	10	5
Beltrami	3,822	201.1	27,341	1,439	19	..	11	17	10	4
Benton	405	57.8	12,857	1,836	7	..	4	5	5	1
Big Stone	491	54.5	9,830	1,092	9	..	6	7	5	..
Blue Earth	762	16.5	29,337	637	46	6	24	38	26	6
Brown	612	32.2	20,387	1,073	19	1	10	14	17	3
Carlton	867	66.6	23,065	1,774	13	1	8	9	8	1
Carver	376	34.1	17,455	1,586	11	1	8	1	1	1
Cass	2,104	150.2	14,425	1,030	14	..	8	12	8	..
Chippewa	591	65.6	14,158	1,573	9	..	5	7	9	..
Chisago	427	47.4	13,747	1,527	16	..	11	12	11	..
Clay	1,043	65.1	20,881	1,305	9	..	3	4	..	2
Clearwater	1,019	254.7	9,713	2,428	4	..	..	..	..	..
Cook	1,498	1439.0	1,719	1,719	1	..	..	..	..	..
Cottonwood	640	91.4	13,076	1,868	7	..	7	7	7	1
Crow Wing	1,057	39.1	18,766	695	27	..	17	22	17	5
Dakota	599	33.2	27,681	1,537	18	1	9	10	10	1
Dodge	440	40.0	12,094	1,099	11	..	4	7	8	1
Douglas	648	38.1	17,669	1,037	17	..	13	15	11	3
Faribault	719	36.2	19,949	1,049	19	..	12	14	14	2
Fillmore	868	37.7	25,680	1,116	23	..	18	23	22	3
Freeborn	735	35.0	22,606	1,076	21	1	11	18	15	5
Goodhue	767	23.0	32,001	1,103	29	1	13	21	15	2
Grant	553	39.5	8,244	669	10	..	11	..	..	..
Hennepin	110	0.8	410,227	638	642	23	362	508	394	119
Houston	570	71.2	14,297	1,111	8	..	6	7	7	..
Hubbard	958	106.4	12,204	1,256	9	..	4	4	2	1
Isanti	442	63.1	13,300	1,900	7	..	5	6	2	1
Itasca	2,730	160.5	27,338	1,608	17	..	8	14	10	1
Jackson	702	46.8	14,491	966	15	..	8	11	12	2
Kanabec	534	267.0	7,809	3,904	2	..	2	..	1	..
Kandiyohi	801	50.0	19,373	1,210	16	..	11	13	13	2
Kittson	1,111	138.8	10,967	1,370	8	..	5	6	4	2
Koochiching	3,141	349.0	10,217	1,135	9	2	2	9	4	2
Lac Qui Parle	790	60.7	16,271	1,251	13	..	8	9	8	3
Lake	2,099	349.8	10,462	1,743	6	..	4	5	4	1
Le Sueur	466	22.1	18,609	886	21	..	11	14	13	7
Lincoln	535	66.8	10,536	1,317	8	..	6	6	6	..
Lyon	708	37.2	16,546	870	19	..	8	15	13	5
McLeod	496	24.8	18,691	934	20	..	13	14	14	4
Mahnomen	572	114.4	3,249	649	5	..	1	1	1	1
Marshall	1,788	198.6	16,805	1,867	9	..	6	7	7	3
Martin	719	44.9	17,942	1,121	16	..	8	12	13	6
Meeker	621	27.0	17,022	740	23	..	11	11	9	2
Millie Lacs	583	44.8	12,630	971	13	..	4	10	6	2
Morrison	1,143	63.5	24,901	1,383	18	..	10	13	8	1
Mower	711	26.3	22,861	846	27	1	12	23	19	3
Murray	704	70.4	11,753	1,175	10	..	7	10	9	2
Nicollet	443	29.5	14,125	941	15	1	5	11	14	2
Nobles	722	45.1	15,412	963	16	..	8	11	12	4
Norman	860	86.0	13,446	1,344	10	..	6	9	2	..
Olmsted	664	45.9	22,077	1,457	145	3	100	134	82	61
Ottertail	2,039	56.6	46,519	1,292	36	..	21	30	22	4
Pennington	607	60.7	10,983	1,098	10	..	8	8	6	1
Pine	1,413	128.4	19,039	1,730	11	..	6	9	7	2
Pipestone	469	33.5	9,762	668	14	1	6	10	9	3
Polk	1,979	69.9	36,419	1,300	28	..	18	23	23	2
Pope	693	69.3	12,869	1,286	10	..	4	9	6	7
Ramsey	161	0.4	262,450	748	351	3	198	257	233	56
Red Lake	432	72.0	7,689	1,281	6	..	2	2	4	1
Redwood	881	61.5	19,274	1,376	14	..	11	11	11	3
Renville	978	65.2	23,123	1,541	15	..	11	14	12	3
Rice	495	16.5	25,911	839	30	2	16	25	24	4
Rock	492	70.2	10,626	1,518	7	..	4	6	5	1
Roseau	1,670	208.7	14,509	1,813	8	..	4	3	3	..
St. Louis	6,503	31.2	221,920	1,082	205	6	125	168	193	22
Scott	366	24.4	14,888	992	15	..	7	12	13	4
Sherburne	448	89.6	8,759	1,751	5	..	4	5	4	1
Sibley	585	48.7	15,540	1,295	12	..	9	9	8	..
Stearns	1,362	29.6	50,119	1,089	46	..	23	35	32	10
Steele	431	26.9	16,146	1,009	16	..	8	11	12	2
Stevens	564	80.5	8,293	1,184	7	..	4	5	5	2
Swift	741	61.7	12,949	1,079	12	1	5	9	4	1
Todd	955	73.4	24,277	1,867	13	..	6	7	9	1
Traverse	568	94.6	8,395	1,399	6	..	6	6	3	3
Wabasha	541	28.8	18,554	876	19	..	14	17	15	4
Wadena	538	48.9	9,185	835	11	..	5	7	8	1
Waseca	431	43.1	13,466	1,346	10	..	5	7	9	1
Washington	397	17.2	26,013	1,131	23	..	7	14	12	1
Watsonwan	434	54.2	11,382	1,823	8	..	5	8	7	1
Wilkin	745	149.0	9,780	1,956	5	..	5	5	4	2
Winona	637	19.3	33,398	1,012	33	1	16	22	23	6
Wright	691	28.7	28,082	1,170	24	..	12	18	12	4
Yellow Medicine	749	49.2	15,991	1,066	15	..	5	10	6	1
Totals	80,856	31.7	2,286,341	897	2,548	57	1,454	1,992	1,621	451

1 Includes Minneapolis, population 373,448; physicians 621 [M. R. C. 119.]

2 Includes St. Paul, population 252,465; physicians 345 [M. R. C. 55.]

3 Includes Duluth, population 97,077; physicians 109 [M. R. C. 12.]

## OF GENERAL INTEREST

At a special meeting of the Hennepin County Medical Society held on June 3d, in Minneapolis, a motion was carried which provided for the appointment by the president of a committee of five who were to list and classify all the members of the medical profession of Hennepin county, the object being to classify all the men according to age, physical condition, special training, dependents, etc., so that the military needs now existing could be met with the best material and with the least disturbance of civilian needs. The members of this committee are: Drs. C. A. Donaldson, C. P. Nelson, A. E. Hedbach, Oscar Owre, and F. L. Adair.

Great changes have taken place at the State Sanatorium recently. Dr. George William Beach who has been the superintendent for the past six years has accepted a commission in the Medical Reserve Corps. Dr. P. M. Hall, President of the Advisory Commission, has taken charge of the management at the urgent request of the Board of Control. This action involves great sacrifices on his part, to thus take up the rather thankless job of an interim management until a permanent resident superintendent can be secured. Dr. M. G. Milan, on the Staff of the Advisory Commission, is acting as temporary assistant superintendent and is taking charge of the medical work, assisted by Dr. McGee.

Lieutenant J. Warren Bell, of Minneapolis, is at the Army Medical School, Washington, D. C.

Dr. E. S. O'Hare has moved from Wing, N. D., to Milroy, Minn.

Lieutenant Theodore H. Sweetser, of Minneapolis, son of Dr. H. B. Sweetser, for many years connected with the medical faculty, has been recommended for the British War Cross for bravery and devotion to duty near Passchendaele on March 13. It is reported that when the battalion headquarters were struck by a shell Lieutenant Sweetser attended to

forty gas victims although he was himself suffering from the poison gas. He also helped to rescue men from a destroyed dugout. Lieutenant Sweetser completed his medical work in the College of Physicians and Surgeons in New York City last June and entered the medical corps of the regular army. Later he was transferred to the medical corps of the British army.

Among the distinguished visitors to Rochester, and the Mayo Clinic during the past week were:

Major P. F. Armand-De Lille, of the Child Welfare Department of France.

Sir James Mackenzie, Consulting Surgeon to the London Hospital.

Sir William Arbuthnot Lane, Consulting Surgeon to Guy's Hospital.

Mons. Justin Godard, member of the French Chamber of Deputies.

Dr. G. Loewy, Major Locard and Capt. De Helle of France.

At a meeting of the Brown-Redwood Medical Society held at New Ulm, Minn., May 23, 1918, the following officers were elected for the ensuing year:

Dr. A. W. Eckstein, Comfrey, Minn., President.

Dr. G. F. Reineke, New Ulm, Minn., Secretary-Treasurer.

Board of Censors: Dr. J. C. Rothenburg, Springfield, Minn.; Dr. D. V. Gleysteen, Lambertton, Minn.; Dr. G. B. Weiser, New Ulm, Minn.

Dr. O. C. Strickler, New Ulm, Minn., delegate to State Society.

Dr. Geo. B. Weiser, New Ulm, Minn., alternate to State Society.

Dr. W. O. Pearce, Minneapolis, gave a talk on Child Relief Work in France.

Three new members were admitted: Dr. F. J. Pelant, New Ulm; Dr. W. A. Meilicke, Nicollet; Dr. W. G. Muessele, Springfield.

Lieut. Lloyd T. Davis of Wadena, is now at Base Hospital, Camp Shelby, Hattiesburg, Miss.

Dr. E. J. Engberg, St. Paul, has been transferred from Camp Doniphan, Okla., to Base Hospital 65, Fort McPherson, Ga.



The following is the present address of Dr. Heagerty of Mazeppa: Major Wm. B. Heagerty, 314 Sanitary Train, 89th Division, American Expeditionary Forces.

The address of Capt. Jacob Fowler Avery, Minneapolis, is now 44th Infantry, Camp Lewis, American Lake, Wash.

We are glad to announce that word has been received from Major J. S. White of St. Paul, of his safe arrival overseas.

Professor L. G. Rowntree, Chief of the Department of Medicine, University of Minnesota, has been commissioned Lieut.-Colonel in the United States Army medical service, and expects to sail in July for active service overseas.

The death of Dr. George Nye, one of the prominent residents of Hubbard county, occurred at his home in Park Rapids May 10th, following an illness of several weeks.

Dr. William N. Porteus who had practiced in Minneapolis 25 years, died May 15th, at his home, 2402 Nicollet Ave. Dr. Porteus was 63 years old and came to Minneapolis from Pembroke, Ontario, where he practiced ten years after receiving his degree from McGill University.

Dr. William W. Lewis of St. Paul, has been commissioned Captain in the Medical Officers Reserve Corps.

Dr. S. S. Hesselgrave of St. Paul, was commissioned First Lieutenant in the Medical Reserve Corps of the National Army.

Dean Wulling and his co-workers in the College of Pharmacy, University of Minnesota, during the past year prepared, or have in process of preparation, 28,000 half pint bottles of tincture of digitalis. This constitutes the complete supply of the drug used in the United States army. A large portion of the drug was raised in the medicinal garden of the college and a new lot of plants are being set out for a supply for next year.

Dr. Frank B. Mach, who has been practicing at 2337 Central Ave., Minneapolis, has left for Washington as First Lieutenant in the Medical Reserve, U. S. A.

## NEW AND NON-OFFICIAL REMEDIES

During May the following articles were accepted by the Council on Pharmacy and Chemistry for inclusion with New and Non-official Remedies:

**Geo. W. Brady & Co.:**

**Barium Sulphate-Brady For Roentgen-Ray Work**

**Johnson and Johnson:**

**Chlorine-Soda Ampoules.**

**Lederle Antitoxin Laboratories:**

**Antipneumococcic Serum, Type I.**

**Monsanto Chemical Works:**

**Chlorcosane-Monsanto.**

**Morgenstern & Company:**

**Acid. Phenylcinch.—Morgenstern  
Acid. Phenylcinch.—Morgenstern Tablets  
Sodium Phenylcinch. Water-Morgenstern.**

**Parke, Davis & Company:**

**Antipneumococcic Serum, Type I.**

**Rector Chemical Company, Inc.:**

**Procaine-Rector.**

**E. R. Squibb and Sons:**

**Antipneumococcic Serum, Type I.**

**Chlorcosane.**—A liquid, chlorinated paraffin, containing its chlorine in stable (non-active) combination. It is used as a solvent for dichloramine-T and is itself without therapeutic action.

**Chlorcosane-Calco.**—A brand of chlorcosane containing from 31 to 35 per cent. of combined chlorine. The Calco Chemical Co., Bound Brook, N. J.

**Chlorcosane-Monsanto.**—A brand of chlorcosane containing from 27 to 30 per cent. of combined chlorine. Monsanto Chemical Co., St. Louis, Mo. (Jour. A. M. A., May 18, 1918, p. 1459).

### PROPAGANDA FOR REFORM.

**Mayr's Wonderful Stomach Remedy.**—This is a "patent medicine" adaptation of the old "fake gallstone" trick, which consists of selling large doses of olive or other oil and a saline cathartic. The result of taking this combination is the passage of a number of soapy concretions which the victim is persuaded to believe are gallstones. In 1915 Mayr was convicted under the Federal Food and Drugs Act for making false and fraudulent claims for his "remedy." As the Food and Drugs Act applies only to the packages of a preparation and not to store window displays and newspaper advertising, Mayr has revised

the labels, etc., for his "patent medicine," but still makes misleading claims elsewhere. (Jour. A. M. A., May 11, 1918, p. 1393).

**Cotarnin.**—Cotarnin is an artificial alkaloid derived by oxidation from narcotin, by a process analogous to the derivation of hydrastinin from hydrastin (which again differs from narcotin only by an additional OCH<sub>3</sub> group). Cotarnin hydrochlorid is marketed as stypticin, and cotarnin phthalate as styptol. Cotarnin is used systematically mainly against uterine hemorrhage, especially in menstrual hemorrhage, endometritis and congestive conditions. It is ineffective against postpartum hemorrhage or bleeding from gross anatomic lesions, and probably also against hemorrhage in other internal organs. Local application of cotarnin in substance or concentrated solution has a direct vasoconstricting effect and is used in tooth extractions, epistaxis, etc. (Jour. A. M. A., May 11, 1918, p. 1396).

**Syphilodol.**—According to the French Medicinal Company, New York, Syphilodol is a "synthetic chemical product of silver, arsenic and antimony," the effects of which are very similar to those of salvarsan and neosalvarsan, with the advantage that, in addition to being available in ampules for intramuscular or intravenous use, it is also furnished in the form of tablets for oral administration. The A. M. A. Chemical Laboratory reports that each Syphilodol tablet contained approximate  $\frac{3}{4}$  grain yellow mercurous iodid with minute traces of arsenic, silver and antimony. The laboratory further reports that a Syphilodol ampule contained a liquid having the characteristics of water, in which the presence of less than 1/6000 grain of arsenic could be demonstrated. Shorn of its mystery, Syphilodol therefore is essentially the old, well-known "protoiodid of mercury." (Jour. A. M. A., May 18, 1918, p. 1485).

**Pyocyaneus Bacillus Vaccine.**—When this vaccine was admitted to New and Non-official Remedies in 1910 it gave promise of having therapeutic value. Now the firms whose products are described in New and Non-official Remedies advise the Council on Pharmacy and Chemistry that they have ceased to make the vaccine because of lack of demand. Holding the lack of demand as evidence that the vaccine had proved without value, the Council directed its omission from New and Non-official Remedies. (Jour. A. M. A., May 18, 1918, p. 1496).

**The Dr. Chase Company.**—A fraud order prohibiting the use of the mails has been issued by the postoffice department against the Dr. Chase Company. This patent medicine concern sold three remedies—pills—which, before the Food and Drugs Act made lying on the label irksome if not expensive, were known, respectively, as "Dr. Chase's Blood and Nerve Food," "Dr. Chase's Kidney Food" and "Dr. Chase's

Liver Food." Since the enactment of the Food and Drugs Act, however, the term "food" in the name of the nostrums has been changed to "tablets" for obvious reasons. In 1917 K. E. Hafer, the proprietor of the Dr. Chase Company, was fined under the Food and Drugs Act for misbranding. (Jour. A. M. A., May 25, 1918, p. 1557).

**Capsules of Bismuth Resorcino Compound.**—According to the label, each capsule of Bismuth Resorcino Compound (Gross Drug Co., Inc., New York City) contains bismuth subgallate, 2 grs.; resorcino, 1 gr.; betanaphthol,  $\frac{1}{2}$  gr., and creosote (beechwood) 1 m. The preparation was declared inadmissible to New and Non-official Remedies because unwarranted therapeutic claims made for it; because the name is not descriptive of its composition, and because the combination of the stated drugs in fixed proportions is irrational. (Reports Council Pharmacy and Chemistry, 1917, p. 139).

**Elixir Novo-Hexamine.**—The A. M. A. Chemical Laboratory reports that Elixir Novo-Hexamine (Usher Smith, St. Paul, Minn.) is not a "stable, palatable, potent preparation of Novo-Hexamine, an acid compound of hexamethylenamine," as claimed, but a flavored and colored solution of sodium acid phosphate and hexamethylenamine in diluted glycerol. The Council on Pharmacy and Chemistry considered the report of the laboratory and the advertising claims, and declared Elixir Novo-Hexamine inadmissible to New and Non-official Remedies because its composition is secret; because the ill-advised use by the public is invited; because unwarranted therapeutic claims are made for it; because the name is misleading, and because it is irrational to prescribe hexamethylenamine and sodium acid phosphate in fixed proportions. (Reports Council Pharmacy and Chemistry, 1917, p. 142).

**Formosol.**—Sunshine's Formosol (The Formosol Chemical Co., Cleveland, Ohio) is claimed to contain 18 per cent. formaldehyde in a solution of soap. The preparation was refused recognition by the Council on Pharmacy and Chemistry because it was advertised indirectly to the public and because unwarranted therapeutic claims were made for it. (Reports Council Pharmacy and Chemistry, 1917, p. 154).

**Kalak Water.**—Kalak Water (The Kalak Water Co., Inc., New York) is a carbonated, artificial mineral water, said to contain in one million parts sodium carbonate, 4,049.0; sodium phosphate, 238.5; sodium chlorid, 806.3; calcium carbonate, 578.2; magnesium carbonate, 48.9, and potassium chlorid, 47.9. In view of the false and absurd claims made, the Council on Pharmacy and Chemistry declared Kalak Water inadmissible to New and Non-official Remedies. (Reports Council Pharmacy and Chemistry, 1917, p. 148).

## REPORTS AND ANNOUNCEMENTS OF SOCIETIES

### REPORT OF THE HENNEPIN COUNTY MEDICAL SOCIETY'S COMMITTEE ON PLAN TO SERVE INTERESTS OF MEN IN THE ARMY, MAY 27, 1918.

This committee met several times during the winter and spring. The purpose for which it was created was to devise means and methods to prevent, as far as possible, hardships befalling the families and dependents of those of our members, who, at the call of the nation, have entered her service in the medical corps. We all know that in many instances such service has been entered into only at a considerable sacrifice; that the financial return in the army is far below what was often earned in civil practice; that medical officers are often no longer young; that the majority have families dependent on them and that while supporting their families they must also support themselves in a manner befitting an officer; that many have left behind them obligations, such as life insurance, mortgages and debts, easily enough carried on their earnings from civil practice, but for which their incomes in the army are entirely inadequate; and that, therefore, it is inevitable that hardships will, and have already arisen in individual cases. In what way may these conditions be met and these hardships minimized? This question has appeared to the committee so important and so urgent, that it decided unanimously to request the president to call this special meeting to listen to its report, and formulate some plan of action to meet the condition. The committee feels, and it is sure that every member of the society feels, that this is an obligation resting on our profession, and that it must be met and borne by those of us who are obliged to remain at home. The question is largely one of money. In this most serious time of the world's history and of the history of this country, the keynote of all our actions and of the actions of everyone of us, must be sacrifice. Those who have gone away have sacrificed much, and we at home must also sacrifice much, and practically the only way in which we can sacrifice is by going without and giving from our incomes. As the war goes on the need for such action as is here contemplated will without question become more manifest. We realize it more now than we did a year ago.

A year ago it was thought that the necessary help could be given by returning to the absent doctor or his family, one-third of the fees collected from his

former patients. This plan has not worked out, and has proven impractical.

Your committee, after very full deliberation, has formulated a tentative plan which it feels confident will succeed if it receives the full and continuous support of all the members of the society. It does not mean that those who go away will suffer no hardship—in these days of stress such a result is impossible—but it does mean that we who remain at home must also carry on and feel the pinch of the times in which we live—that we must give up and give up, until our burdens equalize those of the men who enter the army.

The plan is as follows:

1. A fund to be created which may be drawn upon to supply (or supplement) the needs of medical army officers, members of this society, in the care of their dependent families.

2. The amount of this fund necessary is at present an unknown quantity. The committee has no means as yet of even guessing at the amount which will be required—as time goes on and the needs develop, the required amount will become evident. It is feared it may be large, and it is certain that its necessity will be prolonged to the duration of the war and even beyond.

3. The source from which this fund must be derived can only come from volunteer subscriptions by members of this society.

4. Therefore, it is suggested that a subscription be made by each member of the society for the period of one year, to be paid in twelve equal monthly payments. These amounts will be deposited in a designated bank, to draw interest until withdrawn, and subject to draft on the signatures of designated members of a permanent committee to be later nominated. After the need of such a fund is ended any amount remaining will be apportioned back to the subscribers.

There are over 300 members of our society who are still in active civil practice, and the committee feels that an average of \$10.00 per month would not work an unbearable hardship on any of us. Some will be able to subscribe much more, and some few possibly less, but it is a foregone conclusion that the name of no member of our society will fail to appear on the list. This will give a fund of \$3,000 per month, or \$36,000 for the coming year.

At present there are about 60 members who are in active service, and the recent call will increase this number, and it is anticipated that such a sum will help those in stress over the hard spots.

5. a. How may this fund be raised with certainty? It is the suggestion of the committee that the members be divided into groups, and that each group be assigned to a solicitor selected from our body, who will personally call on each member of his group for his subscription.

b. That then, these subscriptions be turned over for collection to the bank designated as the depository of the fund, and that the bank shall every month draw on the member for one-twelfth of his subscription.

c. It is estimated that one solicitor can conveniently take care of a group of fifteen, and therefore the committee will move, through its chairman, that the president be empowered to create such a board of solicitors, to consist of twenty members, for the purpose of making this canvas of the society and obtaining these subscriptions. The solicitors will report to the permanent committee to be nominated, which in turn will report to the executive committee, and through this latter the activities to date will reach the society at large.

6. It is suggested that the permanent committee to be nominated shall act for one year; that it shall have control of the fund; that it shall investigate cases as they arise; and that it shall have power to disburse the fund as it sees fit, in relief of such cases, either by gift, or by loan (with or without interest), or in any other way, as in its judgment, seems best.

In conclusion the committee wishes it clearly understood that it does not consider the distribution of this fund as in any sense the giving of charity—those who accept assistance from it shall consider it as a supplemental and just income which the government would like to but cannot afford, and that those of us who contribute also consider it in the same light, so that no stigma of accepting and giving charity may attach to such transaction between any member and through the society.

It is understood that if a subscriber enters the service his obligation ceases, and the amount previously subscribed may be withdrawn if he so desires.

Signed by committee.

DRS. H. B. SWEETSER,  
A. W. ABBOTT,  
R. E. FARR,  
E. K. GREEN,  
C. W. PETTIT,  
JAKOB HVOSLEF,  
C. J. RINGNELL,  
NORMAN M. SMITH,  
W. R. MURRAY,  
J. C. LITZENBERG,  
GEO. D. HEAD,  
J. P. SEDGWICK,  
J. G. CROSS,  
J. W. BELL,  
H. H. KIMBALL.

## PROGRESS IN MEDICINE AND SURGERY

### ROENTGENOLOGICAL SECTION.

**PULMONARY TUBERCULOSIS:** Dr. A. W. Crane, speaking editorially in *The American Journal of Roentgenology*, March, 1918, deploras an apparent lack of sympathy on the part of internists and tuberculosis specialists with the roentgenologist's efforts to aid in the early diagnosis and classification of pulmonary tuberculosis. This antagonism may have been aroused, he thinks, by the self-sufficient attitude of some roentgenologists, who thus convey the impression that they consider the roentgen method a blanket substitute for the time-honored laboratory and physical methods. Representative roentgenologists, however, have consistently emphasized the interdependence of different lines of diagnostic data, and the importance of their proper correlation. "We may recognize and even admire the pride of craft which leads the skillful internist to guard with jealous care, his diagnostic province, but we believe that this attitude (of antagonism) is fundamentally wrong." Those who manifest a tendency to discredit this valuable method, by unfair criticism, might rather join with the roentgenologist in his earnest and sincere effort to determine just what place it shall occupy in the galaxy of diagnostic adjuncts.

Let it be constantly borne in mind that the roentgen rays afford an excellent means of studying the diseased lung in the living subject, and that, with the inevitable accumulation of experience in the interpretation of the signs thus revealed, the method will become so potent a factor in diagnosis, that no progressive internist can longer ignore it.

*The Correlation of Pathological and Roentgen Findings:* In a laudable attempt to place the interpretation of the lung roentgenogram upon a foundation of scientific fact, Dr. Kennon Dunham (*Am. J. Roent.*, Vol., 14, No. 6) has conducted a series of studies in the pathology of tuberculosis and the anatomy of the lung, and has correlated his findings with studies of the lung roentgenogram.

He concludes that the earliest lesion is usually found in certain lymphoid tissue centers, described by W. S. Miller, situated in the peripheral part of the lung and in the pleura. To this point the organisms are carried by phagocytes, from the ductuli alveolares, where they have become lodged with soot and dust particles of the inspired air.

After the development of the tubercle within these lymphoid tissue masses, the lesion can be traced along the lymphatics of the veins, arteries and bronchi which supply a lobule, or lung unit. The special significance of these observations lies in the fact that the most characteristic shadow in the roentgenogram



of the actively tuberculous has the triangular shape of a lobule, and the "physical" qualities of a group of engorged lymphatics. Thus, one comes to think of tuberculosis as primarily a lobular disease, and since the lobule is triangular in shape, with its apex toward the hilum, we have a most excellent explanation for the fan-shaped cloud, so frequently seen in the roentgenogram of the tuberculous patient.

The author refers to the work of Gohn and the writings of Baldwin, the former having proven that a primary lesion, histologically slight, may be accompanied by a profound glandular reaction, and the latter that apparently repeated inoculations are necessary for the development of pulmonary tuberculosis.

This thought emphasizes the importance of the study of latent tuberculosis.

The writer asserts in closing that the densities he describes in the roentgenogram are due to tubercles, but he fails to explain why his "fan" disappears as the process becomes inactive. It seems much more logical to attribute these densities to lymphatic engorgement within the affected lobule, the engorgement being due to the activity of the tubercle, lodged in the tiny masses of lymphoid tissue.

We are not prepared to accept, without qualification, the statement that the Dunham "fan" is the sole reliable sign of active tuberculosis, although when present it may be the most conclusive sign we have. We still contend that pulmonary tuberculosis may be recognized, in the absence of the fan, by an infiltration of peculiar distribution and physical characteristics. And having localized such a lesion, the stethoscope in the hands of a competent man, will usually elicit signs of confirmative and conclusive value.

FRANK S. BISSELL.

**ICTERO-HAEMORRHAGIC SPIROCHAETOSIS:** L. Weekers and J. Firket (British Journal of Ophthalmology, Vol. II, No. 3, March, 1918. Translation) review briefly the symptoms and clinical findings in "Weil's disease" the study of which is of comparatively recent date. Conditions on the battle front are suitable for its development and as a consequence it is comparatively frequent among the troops and, in fact is labelled a War disease.

The malady is rapid in its onset attacking those in perfect health; the symptoms are chills, headache, violent muscular pains, especially in the neck, the lumbar region and flanks, the posterior surface of the thighs and legs, hyperaesthesia of the skin, pain on movement of the eyeballs. The temperature rises rapidly to 39° or 40° Cent. and remains there for five or six days, during which period the pulse is feeble but not very rapid and the arterial pressure is lowered.

There may be labial or nasal herpes, frequent epistaxis, moderate bronchitis with blood-stained sputum,

a dry-coated tongue and recurrent bilious vomiting. The stools are soft and colored, but diarrhea is seldom noted. The liver and spleen show slight enlargement; the urine contains a trace of albumen, abundant urobilin, and some blood.

On the fourth or fifth day icterus develops, in some instances slightly, in others intensely. Shortly after the onset of the jaundice the temperature drops to normal or thereabouts and other pre-existing symptoms abate although the urine remains abnormal and contains in addition biliary pigment. After five or six days of apyrexia the temperature often rises, reaching 40°, with daily oscillations and the reappearance of general symptoms. After the termination of this exacerbation, convalescence is rapid.

Cardiac failure is not uncommon, the mortality varying from four to eight per cent.

In cases without characteristic clinical symptoms the diagnosis can be made with certainty by the discovery of the causal agent in (1) the blood, (2) the fresh urine, centrifugalized. If the blood of the patient be injected into a guinea pig, the animal dies in eight days.

The ocular symptoms met with in the course of the disease are numerous and diverse, and in analyzing 50 cases the authors found these symptoms proportioned as follows: (1) Cases without ocular symptoms, 4; (2) simple hyperaemia of the anterior segment of the eye, 29; (3) congestion of the iris, 7; (4) iritis, 6; (5) iritis and optic neuritis, 2; (6) iritis and retro-ocular neuritis, 1; (7) ocular herpes, 1.

PAUL D. BERRISFORD.

**THE ACTION OF PITUITRIN UPON THE GASTRO-INTESTINAL TRACT OF MAN:** H. K. Pancoast and A. H. Hopkins (N. Y. Med. Jour., Feb. 17, 1917) state their conclusions after studying the effect of this drug in eleven cases, as observed by the Röntgen ray. Of these cases, five were entirely free from any gastro-intestinal symptoms—the other six complained of constipation. Of the latter, four presented gastric symptoms of reflex origin, but the effects of the pituitrin did not differ from the normal cases.

The authors state that the time for these studies was twice as long as for normal cases. Furthermore, that a control examination was made previous to the exhibition of the drug.

**Effect on the Stomach.**—Two cases showed definite increase in peristalsis and motility, and two showed no appreciable effect. The others all showed a primary depressing effect of from 15 to 60 minutes, followed in a majority of instances by increased peristalsis and motility.

The influence over the tonicity of the pylorus was variable.

**Effect on Small Intestine.**—In five cases no effect. In the others, the motility was delayed in proportion to the degree of gastric depression.

**Effect on Large Bowel.**—Some positive influence upon increased motility in two cases. No effect in five cases. Lessened effect in two cases. Not examined in two cases.

The authors conclude that the drug has no appreciable effect on the colon in the class of cases examined, admitting that other technic as far as the colon was concerned would give better results.

C. N. HENSEL.

**THE ETIOLOGY OF PHLYCTENULAR CONJUNCTIVITIS:** W. Stanley Gibson (Am. Jour. of Dis. of Children, Vol. 15, No. 2) for the purpose of ascertaining the true etiology of phlyctenular conjunctivitis, studied exhaustively 92 patients afflicted with this disease, both from a clinical and hygienic standpoint.

On physical examination, 52 were found to be well developed and nourished, 23 with fair physique, 12 decidedly below par. To determine with a certainty the living conditions, the author personally visited the homes of 53 patients and found it good in 23, fair in 12, poor in 18. That the poorly nourished patients, particularly those living in miserable homes, are most frequently attacked by this disease is hardly consistent with the foregoing facts if one is to judge from so small a number of cases. In order to determine auto-intoxication as an etiological factor, a measure of indican in the urine was determined in 17 cases with the following results: 5 showed no indican, 5 a trace, 4 a small amount, 3 a large amount.

The value of the quantitative estimation of indican in the urine as an indicator of auto-intoxication is somewhat offset by the fact that this substance may appear in varying quantities in persons enjoying perfect health.

The frequency with which phlyctenular conjunctivitis is met with in scrofulous children and in those who show additional signs of tuberculosis, suggests the possibility that the conjunctival condition rests upon a tuberculous basis. A history of direct exposure to tuberculosis was obtainable in 29 per cent of the 92 reported cases. Nine showed clinically tuberculous glands or scars from operations, 7 had papulonecrotic tuberculids, 7 had suggestive findings in the lungs, 2 had Pott's disease, 6 a distinct D'Espine sign, and in a considerably larger number of cases the findings were suggestive. Of the 92 reported cases all save two gave a positive reaction to the Von Pirquet test. The author remarks: It is an interesting fact that in no case in which there was a typical efflorescence with characteristic focal infection of the surrounding conjunctival vessels, together with lacerimation and photophobia, was there a negative Von Pirquet reaction.

Additional facts brought out by Weekers tends to strengthen the view that phlyctenular conjunctivitis is founded upon a tuberculous basis.

1. The subcutaneous tuberculin test carried out during an attack of phlyctenular conjunctivitis causes an aggravation of the eye symptoms. Weekers

found in 10 patients so treated that the eye lesions became distinctly worse in eight.

2. Phlyctenules have occasionally occurred following the diagnostic or therapeutic use of tuberculin subcutaneously.

3. Numerous cases of phlyctenular conjunctivitis have occurred co-incidentally with, or following a positive ophtalmo-reaction.

4. Weekers performed the ophtalmo-reaction test in five patients who had a history of repeated attacks of phlyctenular conjunctivitis with scars of former lesions, but in none of whom had there been an active process within a year. All of the patients gave a positive reaction, and in three the phlyctenules recurred.

5. Weekers and Stargardt have studied histologically phlyctenules which occurred as a complication of the Calmette reaction, and found that they correspond to those which occur spontaneously.

PAUL D. BERRISFORD.

**CONTRIBUTION TO THE STUDY OF THE PATHOLOGY AND TREATMENT OF MARGINAL BLEPHARITIS:** Cuenod (Contribution a l'etude de la pathogenie et du traitement de la blepharite ciliaire, La Clinique Ophthalmologique, April 1917) in a short but concise article divides this disease into the two regular classes, the simple and the ulcerated.

The former is caused by a chronic hyperemia of the lid margin, often produced by the diathetic conditions, and followed by a distention of the capillary walls. This is often found in individuals who suffer from frequent irritation of the conjunctiva, either from errors of refraction, obstructed tear passages, or vitiated atmosphere.

There is present a hypersecretion of the Meibomian and Moll glands. This in turn often causes the complication of Meibomian infarcts and calcium deposits in cases of blepharitis.

The ulcerated form is merely due to a folliculitis produced by a staphylococcal invasion under the excessive secretion found in the simple variety.

The treatment consists: (1) Combating the atony of the tissues; (2) preventing the general auto-intoxication, usually alimentary in origin; (3) removal of all local causes of irritation; (4) endeavoring to obtain a vasoconstrictor for the vessels; (5) combating the staphylococcal infection.

As a vasoconstrictor, the author advises instillation of adrenalin every two hours for several days, followed by cold compresses.

When the staphylococci have become deep seated in the follicles, applications of yellow oxid fail to reach them and no results are obtained.

Cuenod epilates under cocain anesthesia the entire ciliary margin and then applies a solution of iodid in acetone (percentages not given), followed by a glycerin dressing, for twenty-four hours.

For repeated recurrences he advises the administration of anti-staphylococcal vaccine.

CARL L. LARSEN.

**FURTHER STUDIES OF AN ANTIPOLIOMYELITIC SERUM, ITS PROTECTIVE AND CURATIVE PROPERTIES IN EXPERIMENTAL POLIOMYELITIS OF MONKEYS:** J. W. Nuzum and R. G. Willy (Jour. Inf. Dis., Vol. 22, No. 3) say that observations over a considerable number of years show that one attack of poliomyelitis confers immunity against subsequent infection. And further, that the serum of recovered patients and monkeys may have acquired neutralizing and protective properties against the virus of poliomyelitis. The chief disadvantage in treating this disease with the serum of recovered human patients is the difficulty in securing serum in sufficient quantities and the low antibody content of human serum.

A peculiar coccus was isolated quite regularly from patients with poliomyelitis in Chicago during the years of 1916 and 1917. This was used in the studies.

From the series of experiments they conclude:

A highly potent immune serum can be produced in the horse by repeated intravenous injections of aerobic cultures of the poliomyelitis coccus.

Monkeys can be immunized against several fatal doses of virulent monkey-adapted virus by repeated intravenous and intra-cerebral injections of the poliomyelitic coccus.

The serum of the horse immunized with strains of the poliomyelitic coccus obtained from human and monkey sources possesses protective and curative properties against the virus in experimental poliomyelitis of monkeys.

C. E. SMITH, JR.

**ANGULATION OF THE SIGMOID:** Delatour (Surg., Gyn. and Obs., Vol XXVI, No. 3) points out that the sigmoid flexure is the narrowest part of the colon, beginning at the termination of the descending colon at the margin of the crest of the ileum and ending in the rectum opposite the left sacro-iliac symphysis. It is retained in place by a loose fold of peritoneum, the sigmoid mesocolon.

At either end of the sigmoid is a constriction which Cantlié describes as a sphincter to which he gives the same importance as to the pylorus. He describes the sigmoid as an organ with a definite function and not a mere channel for the passage of faeces. The sigmoid mesocolon varies much in length and this leads to varying degrees of mobility with occasionally a twisting of this upon itself, producing volvulus.

If, as Cantlié claims, there is sphincteric action at either end of the sigmoid, it must be possible for spasm to occur here and thus to impede the flow through the intestine at this point, just as we see in cardiospasm and pylorospasm at the stomach.

If the bowel twists completely on itself, we have produced volvulus with the symptoms of intestinal obstruction, but if the sigmoid becomes distended and displaced with two extremities attached, as they are,

close to the abdominal wall, it is easy to see how the bowel may become bent upon itself and an angulation instead of a twisting, result. This angulation will cause symptoms of intestinal stasis through the partial obstruction that takes place. Angulation at the proximal end of the sigmoid is rare but it is more common at the rectosigmoid junction, as the distended sigmoid loop tends to drag downward and to bend the bowel at this point. Occasionally, angulation results from external bands which pass across the sigmoid, or to contraction following a mesosigmoiditis. Intestinal stasis, as a cause of varying degrees of ill health, is a recognized fact. Resection of the caecum, ascending colon and a portion of the transverse colon, is necessary in some cases; in others, the freeing of adhesions at either the hepatic or splenic flexures, or the overcoming of a prolapsed transverse colon is necessary. In other cases, the author states the cause is found in a relaxed sigmoid that angulates itself at times and requires resection of that portion of the bowel for relief.

E. M. JONES.

**OBSERVATIONS ON THE BACTERIOLOGY OF CHOREA:** W. J. Quigley (Jour. Inf. Dis., Vol. 22, No. 3) says that the frequent association or sequence of tonsillitis, acute rheumatic fever, endocarditis, and chorea in children is an ancient observation in clinical medicine. The etiology of chorea has been explained on several theories, one of which is that it is an infection.

Many investigators have obtained bacteria in blood cultures in chorea before and after death, but in a large number of these cases, rheumatic fever or acute cardiac involvement was associated. Very little has been written on the bacteriology of uncomplicated chorea.

He made cultures from the tonsils, and whatever foci were observed, and from the blood and cerebrospinal fluid of acute, subacute and chronic cases of chorea, care being exercised to select only patients showing no evidence of active heart or joint involvement.

From so small (21) a series of cases no general conclusions can be drawn. It is of interest that in 21 patients with chorea in public institutions none gave any evidence of syphilis, which consequently seems not to be of any etiologic importance in the disease.

There is nothing characteristic or peculiar in the spinal fluid in chorea. Accepting the presence of globulin in the spinal fluid, and an increase in the number of cells, as an indication of irritation or inflammation of the meninges, these results indicated that there is no change in the meninges in chorea as a rule.

Of 21 cases, 10 yielded positive cultures from both the blood and spinal fluid, and 14 in either one or the other. Six of the bacterial strains isolated from the tonsils, 8 from the spinal fluid and 9 from the blood, were identical in their morphologic and cultural char-

acteristics. It, therefore, seems that bacteria are of importance in chorea and that the coccus mentioned in the foregoing is most frequently present, judging from the results in this series as well as the work of others.

As to the grouping of the organism, its slow, scant, pin-point growth on blood agar, the slight turbidity and fine granular sediment produced in broth, would seem to relate it with the streptococci. In the predominance of pairs, with few short chains, and a few irregular groups, when grown in broth, it resembles the streptococci also, and especially the streptococci or diplococci frequently found in rheumatic fever and endocarditis. It should be noted that the strains studied do not as a rule cause hemolysis on blood agar plates. No definite grouping can be made on the bases of the fermentative reactions as observed.

C. E. SMITH, JR.

#### A NEW MICROSCOPIC METHOD OF COUNTING BACTERIA ADAPTABLE TO ALL GRADES OF RAW AND PASTEURIZED MILK: P. W. Allen

(*Jour. Inf. Dis.*, Vol. 22, No. 3) considers one of the greatest difficulties in the way of bacteriologic control of market milk to be the lack of a suitable means of determining the number of bacteria per c. c. at all stages of production and handling. The plate method is not adaptable as it requires a laboratory and at least a few days for incubation of the plates, during which time the milk is consumed before the count is known. The microscopic method in which the 1-100 c. c. pipet is used has little accuracy until the milk contains about 200,000 bacteria per c. c. In an attempt to find a satisfactory method for use where the count ranged between 3,000 and 300,000 bacteria per c. c., one was devised which is based on the fact that a watery suspension of aluminum hydroxide readily collects the bacteria in milk and the centrifuge is able to throw down the chemical with contained bacteria at one end of the tube leaving the fat casein and water very largely behind. The technique of the method is given in detail, including both the preparation of the hydroxide suspension and the procedure. The precautions to be observed are considered carefully.

Tables are given showing the comparison of the hydroxide method of counting bacteria in milk with the plate method and the Breed method. From these tables it is concluded that in this method about 95 per cent of the bacteria in the average sample of milk appear in the hydroxide thrown down by centrifugalization.

A final verdict can be given on this method only after several laboratories report satisfactory results.

C. E. SMITH, JR.

#### A CONTRIBUTION TO THE PROPHYLAXIS OF LOBAR PNEUMONIA: J. A. Kolmer and E. Steinfeld

(*Jour. Inf. Dis.*, Vol. 22, No. 3) record various experiments which they have conducted on mice with the sputum containing Type I and IV of the pneumo-

coccus obtained from the mouth secretions of convalescents and carriers.

Bearing in mind the numerous difficulties in disinfecting the mouth of pneumococci even with powerful and more or less specific antipneumococcus agencies as ethylhydrocuprein and other quinine compounds, it is hardly to be expected that complete destruction of all pneumococci in the mouth and upper air passages generally can be accomplished by this means, but for use among physicians, nurses and members of a family in intimate contact with persons suffering with lobar pneumonia, the systematic and daily use of washes prepared from 1:10,000 solutions of ethylhydrocuprein hydrochloride or quinine bisulphate in 1:10 liquor thymolis, may serve to destroy virulent pneumococci as they gain access to the mucous membrane of the mouth and upper part of the throat and prevent their proliferation in large numbers; in this manner and among such groups of persons the systematic use of a mouth wash of this kind held in the mouth and gargled in the throat for at least a minute, twice or three times each day may aid in the prophylaxis of lobar pneumonia. Ethylhydrocuprein hydrochloride by reason of its superior pneumococcidal properties is to be preferred, but owing to the great scarcity of the drug at this time may be substituted by quinine bisulphate; solutions of either stronger than 1:10,000 are likely to prove objectionable to most persons. Liquor thymolis in itself appears to aid in the disinfecting process and is well borne in a 1:10 dilution serving also to disguise to a large extent the bitter taste of ethylhydrocuprein or other cinchonic.

C. E. SMITH, JR.

#### ETIOLOGICAL FACTORS OF ACNE VULGARIS:

Albert Strickler (*Amer. Jour. Med. Sc.*, Oct., 1917) states after investigating acne patients from every point of view, that acne is a complex disease with a great many factors to be considered. Acne comprises from 3-11 per cent of all dermatological cases.

Imperfect digestion is very common in acne patients. Of 30 cases studied by means of test meals, gastric analyses and fluoroscopy, 93 per cent showed abnormality, as hyperacidity, retention atony and ptosis; while 70 per cent showed intestinal abnormality, as cecal stasis, ptosis of the colon, and right lower quadrant adhesions.

In conjunction with Doctors Kolmer and Schamberg the author performed some complement fixation tests on acne patients using polyvalent antigens isolated from acne patients and also a control colon bacillus antigen isolated from normal persons. Of 57 cases so studied 63 per cent gave a positive fixation with the acne antigen and 32 per cent with the colon normal antigen.

A study of the smears taken from acne lesions shows the acne bacillus in practically all cases in association with other bacteria.

By using special media Gilchrist obtained the acne bacillus in pure culture in 12 per cent but the author has found this very difficult to achieve.



The writer's conclusions are that:

Acne is due, in the vast majority of instances, to the acne bacillus which is normally present on most skins and is activated by other factors than its mere presence in those who develop the disease.

The colon bacillus or its toxins, elaborated from imperfect digestion or intestinal stasis, is an activating cause in a large percentage of cases.

To a lesser degree the staphylococcus—either alone or in conjunction with the colon bacillus—also plays its part.

C. N. HENSEL.

## BOOK REVIEWS

*THE SURGICAL CLINICS OF CHICAGO.* (By various authors. February, 1918. Vol. 2, No. 1. Published Bi-monthly by W. B. Saunders Company, Philadelphia and London.)

This is a very interesting and instructing volume. Of special interest is the clinic of Arthur Dean Bevan, in which he demonstrates the technic of plastic operation on the common bile duct. His several illustrations are self-explanatory and the text is very interesting.

Major Kellogg Speed's talk to the British Expeditionary Force on gunshot wounds of the head reviews the work in that field up to date.

Dr. Watkins has an interesting chapter on radium.

There are several other articles of lesser importance, but which all go to make up a volume which should be very interesting to the general surgeon.

WM. C. CARROLL.

*LONG HEADS AND ROUND HEADS* or What's the Matter with Germany. (By WILLIAM S. SADLER, M. D. Illustrated. Published by A. C. McClurg & Co., Chicago, 1918. Price, \$1.00.)

This little volume presents one of the most original arguments which has appeared thus far in the rapidly growing literature dealing with the psychology of the war.

It is not to be considered in the same category as, for example, Le Bon's comprehensive study of the psychological aspects of the great struggle, but taking up a single viewpoint, Dr. Sadler has developed it convincingly.

In brief, his contention is that German ruthlessness and barbarity are traceable not alone to the dictates of a war lord or the inflexibility of a military caste, but to race deterioration, the answer for which is found in anthropology. Because of the preponderance in the German nation today of "round heads" or Alpine stock over the original Teutons or "long heads" of Central Europe, all this world tragedy is unfolded. We find among the Teutons of old, leaders, artists, scientists, and poets, and even our own excellent pioneer citizens such as Carl Schurz, but as

they allowed themselves to be overrun by the Alpine peasants, brutal, stupid and barbaric, they lost their power in the German peoples, and the result is that today the nation is being led by men of the Von Hindenburg type, a characteristic "round head."

It is not difficult for the author then to persuade his readers, of the world menace of such a racial mixture, for the inherent ambition of the Teuton makes him accept the present régime as a means to an end, and he does not protest as we would expect him to at the Alpine fearfulness.

Dr. Sadler has launched some good propaganda, for being sane and serious, he is at the same time entertaining and will undoubtedly be read.

MABEL COOPER.

*MILITARY SURGERY.* (By DUNLAP PEARCE PENHALLOW, S. B., M. D. (Harv.) Major Medical Reserve Corps, United States Army; Chief Surgeon American Women's War Hospital, Paignton, England; Formerly Director of Unit, American Red Cross European Relief Expedition. With an Introduction by SIR ALFRED KEOGH, K. C. B. Director-General, Army Medical Service. Published by the Joint Committee of Henry Frowde and Hodder & Stoughton, at the Oxford Press Warehouse, Falcon Square, London, E. C. 2nd Edition. 1918. Price, \$6.00.)

War surgery differs widely from that which is seen in civil practice even in large hospitals where occasional gunshot injuries are encountered, as the wounds thus seen are usually comparatively simple and are treated early before complications have arisen. Wounds in warfare, on the other hand, are much more severe, and owing to the delay in collecting the wounded from the battlefield and the difficulties in transportation, complications have usually arisen before adequate surgical aid can be given. Again, many of the cases present complex problems in treatment owing to the multiplicity of the wounds and their type (this is especially true of the bones). Therefore, many new problems, both as regards treatment and the types of apparatus to be used, are constantly being brought to the notice of the military surgeon.

In this book an attempt has been made to describe briefly the different forms of projectiles and the nature of the wounds which they cause, and the various complications which result from the different types of wounds. An attempt has also been made to show in a brief manner the principles of treatment which have been found to be efficacious under the various conditions. While much of the work has been compiled from observations made at the American Women's War Hospital, current literature has been freely referred to. An excellent bibliography is appended to each chapter.

The revision of theories and the changes and improvements in methods of treatment of wounds have been so numerous and have occurred so rapidly that a revision of the book was necessitated very soon after its appearance. This second edition includes a

description of that greatest advance in modern treatment of infected wounds, namely, the technique evolved by Carrel. The chapter on "Treatment" has been rewritten.

We find the illustrations excellent and in number they have been increased from 151 in the first edition to 226 in the second. The revision has necessitated adding 117 pages to the work. The edition we have before us is most complete and is a splendid improvement to a valuable work. The mechanical features are of the usual standard of excellence of this well known house.

*INTERNATIONAL CLINICS.* (By Leading Members of the Medical Profession Throughout the World. Edited by H. R. M. LANDIS, M. D., Philadelphia, U. S. A. Published by J. B. Lippincott Co.)

The majority of the clinics given emphasize war lessons and are especially valuable at this time because of that. The method described by Dr. Bevan of handling injuries of the urethra is old, as he says, and yet, cases are continually presenting themselves where neglect of proper sounding over a long period of time following urethral operations has produced bad results. The variety of conditions presented emphasize Anesthesia, Orthopedics, Obstetrics, with special emphasis on Neurological and Orthopedic Surgery.

GEORGE EARL.

*ELEMENTS OF HYGIENE AND PUBLIC HEALTH*, a Textbook for Students and Practitioners of Medicine. (By CHARLES PORTER, M. D., B. Sc., M. R. C. P. (Edin.), of the Middle Temple, Barrister-at-Law; Medical Officer of Health Metropolitan Borough of St. Marylebone; Examiner in Public Health, University of Edinburgh; Member of Board of Examiners, Royal Sanitary Institute and Sanitary Inspectors' Examination Board; formerly Tutor in Public Health, St. Bartholomew's Hospital, etc. With 98 Illustrations. Published by the Joint Committee of Henry Frowde and Hodder & Stoughton, at the Oxford Press Warehouse, Falcon Square, London, E. C., 1917. Price, \$4.15.)

This book is very clearly written and should be a handy work for one interested in the subject. As an "Elements" it is perhaps too full, but it is doubtful if it could have been made much briefer without lessening its value. The chapters on the various transmissible and parasitic diseases are unusual in a work of this sort but are well included. The viewpoint of the author is not the familiar one taken by writers on these subjects but is interesting. It should do much to help the medical practitioner fill the place so definitely his in the public health scheme of disease prevention. While the illustrations are for the most part new, there is much still to be desired in the way of improvement. In this particular branch of medical science, well chosen illustrations help tremendously to elucidate the text. Various

leaflets selected from different health boards are included at the end of the book. This is a much better idea than the common method of including them in the text. A certain amount of attention is given to carriers, missed cases and the "recovered" case as potential sources of disease, but these points should be more emphasized than they are. Altogether, the book has very much to recommend it.

C. E. SMITH, JR.

*THE IMMEDIATE CARE OF THE INJURED.* (By ALBERT S. MORROW, A. B., M. D., Clinical Professor of Surgery in the New York Polyclinic. Third Edition, Thoroughly Revised. Published by W. B. Saunders Company, Philadelphia and London, 1917. Price, \$2.75.)

This book is intended for reference in first aid work. It is very complete and, at the same time, clear and concise throughout. The work is divided into three parts, part one being taken up with a description of the anatomy of the human body, including bones, muscles, nerves and the viscera. Part two is devoted to bandaging, slings and dressings. Under this heading is included all the different forms of dressings and the particular injury in which each individual dressing can be used to best advantage. Antisepsis is not forgotten but is emphasized in a proper manner. Part three deals with different forms of injuries, including wounds, fractures, dislocations, poisoning of different kinds, as well as burns and frost-bites, and the first aid treatment of each. This part is especially complete and instructive and to the point throughout. It also contains a chapter on improvising a means of transporting injured persons to more convenient locations, also the preparation necessary for the proper care after arrival at this point.

This work is a very useful book of reference for the busy practitioner who does not usually have an extensive library, or if he has, the time to make use of it when called to see a case in a hurry.

C. B. TEISBERG.

*THE PRACTICE OF PEDIATRICS.* (By CHARLES GILMORE KERLEY, M. D., Professor of Diseases of Children, New York Polyclinic Medical School and Hospital. Second Edition, revised and reset. Octavo of 913 pages, 136 Illustrations. Published by W. B. Saunders Company, Philadelphia and London. 1918. Price, \$6.50 net.)

This volume of 913 pages and 136 illustrations covers the subject of pediatrics thoroughly and should be most desirable as a ready reference work, both for the pediatricist and the general practitioner. Each subject is treated concisely and only sufficient space allowed for theory and supposition. The therapeutics reflects the personality of the author and being based on a wide experience would seem to be the most valuable feature of the volume. It should most strongly appeal to the profession at large for this one feature alone.

EUGENE F. WARNER.